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THE NATIONAL ASSOCIATION OF SECONDARY SCHOOL PRINCIPALS

The National Association of Secondary School Principals at its ninth annual meeting, held in Cincinnati February 21 to 26, inclusive, departed from its usual custom and held its meetings in the high schools of the convention city. In some respects this did not prove to be a good plan, for it resulted in a marked decrease in attendance. It seems evident that high-school principals, as well as superintendents, look upon the annual winter meeting as a junketing trip as well as an educational meeting. However, the attendance at some of the meetings was well over six hundred.

The first session of the convention was a joint meeting with the National Vocational Guidance Association. At this session, Jesse B. Davis, of Boston University, outlined a practical program of guidance for secondary schools. R. T. Hargreaves, of the Central High School, Minneapolis, took issue with those who depend on educational and prognostic tests. Dean Herman Schneider, of the University of Cincinnati, supported Mr. Hargreaves' contention in part in his address, "Guidance through Co-operative Part-Time Schooling."

A meeting was devoted to a program on "International Understanding." The president of the association, Principal L. W. Brooks,

of Wichita, Kansas, made a plea for the addition to the high-school program of an eighth objective—international understanding. Augustus O. Thomas, president of the World Federation of Educational Associations and state commissioner of education of Maine, laid down a program for the instruction of international understanding in secondary schools. I. L. Kandel, of the International Institute, Teachers College, Columbia University, developed a constructive program. At this session, there was also a report of the Committee on Rural High Schools.

The members of the association accepted without approval or disapproval the report of the Committee on College Relations and voted to continue the committee. The greater part of the meeting at which this report was made was devoted to a discussion of current problems in secondary-school administration under the leadership of Charles H. Judd, director of the School of Education of the University of Chicago. Mr. Judd urged the six hundred principals present to lay aside the petty details incidental to secondary-school work and become real supervisors of their great institutions.

At the business session L. W. Smith, of the Joliet Township High School, Joliet, Illinois, presented the report of the Committee on National High School Athletics, the burden of which was that interschool contests by girls are disapproved as well as great inter-sectional athletic contests for boys. The president of the National Honor Society, Edward Rynearson, reported that there are over three hundred local chapters affiliated with the society and that approximately eight thousand high-school boys and girls are wearing its emblem. He also reported that the National Honor Society is considering the development of a junior society to stimulate scholarship in the freshman and sophomore high-school classes. R. R. Cook, of the Theodore Roosevelt High School, Des Moines, Iowa, presented a report on "Standard Blanks for High-School Use." The Committee on Joining the National Education Association presented a report through its chairman, Claude P. Briggs, of the Lakewood High School, Lakewood, Ohio. The report favored the National Association of Secondary School Principals becoming a department of the National Education Association on terms which would leave the high-school principals independent to pursue their own policies.

The high-school curriculum was reported upon at length by both Charles C. Tillinghast, principal of the Horace Mann School for Boys, New York City, and C. O. Davis, of the University of Michigan.

On the morning of the last day of the meeting there were two sessions—one for the senior high schools and one for the junior high schools. At the senior high school meeting the health program of the Lincoln High School, Lincoln, Nebraska, was presented by the principal, Homer P. Shepherd. At the junior high school session, James M. Glass, director of junior high schools in the state of Pennsylvania, presented a paper on "Recent Developments in the Junior High School Field."

A session was devoted to tests and measurements as a basis for homogeneous grouping. Edwin A. Shaw, of Harvard University, presented a defense of the use of tests and showed that through their use great progress has been made in the study of problem cases.

The National Association of Secondary School Principals elected the following officers for the current year: President: William E. Wing, Deering High School, Portland, Maine. First vice-president: H. L. Miller, Wisconsin High School, University of Wisconsin, Madison, Wisconsin. Second vice-president: A. J. Burton, East High School, Des Moines, Iowa. Secretary-treasurer: H. V. Church, J. Sterling Morton High School, Cicero, Illinois. Executive Committee: L. W. Brooks, Wichita High School, Wichita, Kansas; C. P. Briggs, Lakewood High School, Lakewood, Ohio; Edward Rynearson, Fifth Avenue High School, Pittsburgh, Pennsylvania.

Those interested in the ninth yearbook of the association, which contains all the papers read at the Cincinnati meeting, may obtain a copy by joining the association. A check for two dollars, sent to Secretary H. V. Church, J. Sterling Morton High School, Cicero, Illinois, entitles one to both membership in the association and the yearbook.

Any secondary-school principal wishing to form a chapter of the National Honor Society should write to Secretary H. V. Church for information.

THE ALL-YEAR SCHOOL IN ENGLAND

A radical readjustment in some of the municipalities of England to meet the requirements of the industrial system by opening the

schools for the whole year is described in an editorial in the London *Times Educational Supplement*. The change which is taking place in England is of special interest to Americans in view of the fact that the long summer vacation which is characteristic of our educational system is the result of an industrial demand which arose during the period when American communities were, for the most part, rural and agrarian and employed children on the farms in the summer months. The industrial situation in the United States, as in England, is such that there is no real ground for the present distribution of vacation periods. Possibly the example of the English schools will encourage experimentation in this country.

The editorial is as follows:

The Nottingham Education Committee is following the example of London and some other areas and, subject to the approval of the Board of Education, is arranging that there should be a fourth term during the year, beginning after midsummer and ending on October 31. The object of the change is to avoid having a large number of children leaving school simultaneously and thereby flooding the labour market. Although objections have been raised from time to time on educational grounds to the fixing of four school leaving periods, the benefit from an industrial point of view outweighs the educational disadvantage. The Board of Education, in Circular 1123 of July 31, 1919, while expressing the view that a school term must necessarily be a substantially continuous period of education, beginning, as a rule, at the end of one school holiday, suggested that if four terms were preferred to three, the break should be about the end of October. It has not been easy for local authorities in certain parts of the country, more especially during the recent trade depression, to induce parents to comply with this regulation, and the difficulties found in enforcing Section 138 (1) of the Act of 1921 led many authorities to approach the Board on the matter during 1923. In the report of the Board issued last year reference was made to the efforts of certain local authorities to find a way by which they could secure observance of the law and prevent a sense of grievance in the minds of the parents, who, through necessity, were anxious to avail themselves of their children's earnings. In some instances, monthly terms were contemplated—in one case a weekly term. Several authorities proposed dividing the school year into six divisions. The Board felt, however, that the release of wage-earners at such short intervals would prejudice the organization of advanced instruction under Section 20 of the Education Act, 1921, and would prevent that arrangement of suitable courses for older children which they were anxious to see inaugurated.

Judging from the experience of London, the existence of four terms does, on the whole, serve the purpose of preventing too great an outflow from the schools at one period. The returns published by the London Authority in Janu-

ary showed that 89.8 per cent of the young people who left school in the year ended March 31, 1923, were employed at the period when the inquiry was undertaken, in the summer of 1924, and that 79.2 per cent had worked for over twelve months since leaving school. A suggestion has been made that in view of the difficulty of placing young people in satisfactory situations during August, a fifth leaving period should be permitted to take place at Whitsuntide. There is something to be said for the proposal, for the summer term is longer than the other three terms, while the latter part of May is a busy time in many industries. Employment secretaries find that there are manifest disadvantages in having to place a larger number of school leavers at the end of July than at any other period of the year. The distributing trades and a number of women's industries seldom recruit learners between July and September, and the August holiday produces slackness in many trades. The question might well be explored by both the Ministry of Labour and the local education authorities, and the results of their investigation would be of value. While it is important that all constructive effort to render the last year of school life as fruitful as possible should be upheld with determination, it is of equal importance that young people fresh from school and eager to work should not lose heart or deteriorate in character through failure to secure employment.

THE DALTON PLAN AT SCARSDALE

An item published in the newspapers and quoted in one of the educational periodicals to the effect that the Dalton Plan had been abandoned in the high school at Scarsdale, New York, led the editors of the *School Review* to write to Ralph I. Underhill, who recently contributed an article to the *School Review* describing the plan as operated in that school. Mr. Underhill wrote in reply to the inquiry:

Since my article in the *School Review* was written we have found it necessary to introduce more of a program and provide for more group conferences. It was the introduction of the program that inspired the announcement that we had abandoned the plan.

Mr. Underhill inclosed with his letter a mimeographed statement from which the following paragraphs may be quoted:

THE DALTON PLAN

Advantages.—(1) recognition of individual differences, (2) pupil responsibility, (3) thoroughness of work, (4) improved morale, (5) improved interest in work, (6) co-operative work, (7) increased knowledge of pupils by teachers, (8) satisfaction in achievement.

Disadvantages.—(1) irregular study, (2) tendency to fall behind, (3) lack of oral expression, (4) lack of group work, (5) lack of drill, (6) "out-of-step" pupils lost, (7) insufficient number of individual conferences, (8) wandering and "flitting," (9) lack of routine.

THE SCARSDALE PLAN

Organization.—The school day is divided into periods seventy or seventy-five minutes in length, and a program of group conferences is arranged in each grade and subject. In the seventh, eighth, and ninth grades three of these group meetings are regularly scheduled each week. In Grades X, XI, and XII two conferences a week are scheduled, except in the case of plane geometry, physics, and chemistry, which are essentially one-year subjects and are given three conference periods a week.

The conference schedule accounts for from 50 to 75 per cent of the pupil's time, according to the grade of the pupil. While eliminating the weaknesses of the Dalton Plan, it conserves the vital elements of strength in the individual system, for during his free time the pupil has an opportunity, which the class method denied him, to consult his teachers, study under their supervision, and receive such additional help as he requires. Moreover, if the pupil's position in a given subject justifies it, he may be excused from part of the conference period in order to devote more time to those subjects which are difficult for him.

The conference period: (1) *Class conference.*—The class conference will ordinarily come at the beginning of the period. It will include clearing up common difficulties, class discussion, drill, and testing. In general, the class-instruction period will resemble a "group conference" more closely than the usual recitation, but it will seek to combine the best features of each. It should take not more than 25 per cent of the period.

(2) *Assignment.*—The assignment will ordinarily follow the class conference and will require not more than 25 per cent of the period. During the assignment the teacher will prepare the pupils for the advance units, paying especial attention to methods of study. The teacher will plan her instruction to cover the contract within the allotted time and will assign definite units for each class meeting. Failure to prepare the assignment should involve after-school study.

(3) *Individual study and instruction.*—The remainder of the period will be devoted to individual study of the assignment. The aim should be to reserve as much time as possible for this purpose. The skill of the teacher, her understanding of her subject and of her pupils, and her ability to inculcate good study habits and to teach concisely will result in preserving at least forty minutes, possibly more, for individual study.

EXTRA WORK FOR UNSATISFACTORY PUPILS

H. V. Church, principal of the J. Sterling Morton Township High School, Cicero, Illinois, has devised a plan for stimulating pupils who fall behind in their endeavors. The plan is the very simple one of giving the pupil more opportunity to work each time he slips back. The number of hours during which the ineffective pupil is thus kept under the direct supervision of his teachers is increased in proportion to his ineffectiveness. The pupil who shows independence in his work

and is able to make progress without extra direction is not required to work under supervision except at the time of his regular recitations.

The principal's bulletin to the faculty of the school which describes the routine to be followed in these matters is as follows:

OUT CLUB

- I. Each pupil who is doing unsatisfactory work should be required to report for a study hour *with the teacher with whom the subject is pursued*, if this is possible. If this is not possible, assign pupils as outlined below.
- II. For pupils who cannot be called into conference and study with their teachers:
 1. Pupils, for each study below 75, will be assigned to a study room for one period a day.
 - a) A teacher may request a study period for a pupil for unsatisfactory work at any time—the sooner, the better. A pupil who can do work at a level of 90 and does it at 80 should be considered as doing unsatisfactory work.
 - b) Pupils who represent the school in public performances—plays, band, orchestra, choruses, operas, athletics, debates, etc.—who are thus assigned will become ineligible for public performance one week (7 days) after assignment. Special notice must go from teacher thus assigning to teacher in charge of public performance and must be followed seven days after first notice by a final notice to render ineligibility effective.
 2. Teachers should assign pupils for study hours:
 - a) By orally, but privately, informing the pupil that his work is unsatisfactory.
 - b) By presenting him with an admittance slip (not any old slip of paper), dated with date pupil will appear in study room, with name printed (if teacher's penmanship is illegible), and with subject, room, and period properly filled in. This slip should be signed by name (not initials) of teacher. The period, or hour of this daily incarceration, should be determined upon by consultation with the pupil. *A duplicate of this slip should be placed in my box. Clip this slip to card. See (d) below.*
 - c) By posting to the pupil's attendance card in the files in Room 303 the room number and "St" (study room) in the proper blanks.
 - d) By making out a 3×5 card, on the upper line of which shall appear the pupil's name, below the date and the name of the study in which the pupil's work is unsatisfactory. *Place this card also in my box.*
 3. Pupils should not be excused from study rooms for public speaking without special written request from their spelling teachers.
- III. The study rooms are 216, 219, and 220.

THE ATTITUDE OF TEACHERS TOWARD TEACHING

The following article was published in a recent issue of the *New York Times*:

Many teachers in the public schools discourage their ablest pupils from taking up teaching as a profession. This was brought out by a questionnaire sent to 30,000 teachers in a school survey. Some declared the profession is a "blind-alley job," and a majority believe that low salaries are a bar to teacher-recruiting.

"What should public-school teachers and principals do to recruit the ablest young people for teaching?" was one of thirty questions asked by Superintendent William J. O'Shea. In the answers there were explanations of why it is believed the ablest young people are not becoming teachers. More cautions as to the type which should be recruited were expressed than suggestions for recruiting.

Of 766 high-school teachers in 222 schools who answered the questions, 210 wrote that they try to turn the ablest pupils away from teaching as a profession. There were 295 who said the social status of the teacher is not high enough, 139 who called teaching a blind-alley job, and 241 who said that their responsibilities did not include those of a recruiting officer.

The leading suggestion received was that higher salaries should be given beginners commensurate with those said to be offered in other lines of business. Teachers usually start with \$1,500, with annual increases for twelve years up to \$2,700. It was contended that a scale from \$2,000 up to \$5,000 a year should hold for high-grade services.

Several teachers believe that boys' schools should be cared for first in the appointment of new teachers. It was claimed that young teachers, as a rule, will not accept appointment in boys' schools if they can avoid it. Additional salary was urged to attract teachers to boys' classes to "compensate for the additional strain and the consequent more frequent doctors' bills and probable loss of health." Several ways to recruit more men teachers, while still obeying the equal-pay law, were suggested. These included a bonus for men teachers who would teach boys and an "increase in salaries for men teachers by making their duties a little different." One suggestion was: "Attract the ablest young men in the high schools through adequate representation of the prospects in the teaching profession."

Improving the quality of recruits was claimed by many to be more important than increasing their number. The suggestions included discouraging unfit recruits; stressing manners more than qualifications; eliminating the unfit in the first term of the training school; requiring teachers to be models in the use of English; and, if necessary, granting a bonus or giving special-service credit to teachers on the lower east side.

TRAINING TEACHERS IN CIVICS

Boston University has issued a news bulletin containing the following description of a plan to give high-school teachers information on social and economic conditions in New England:

The Boston University School of Education, in co-operation with the Boston Chamber of Commerce, has undertaken an interesting pedagogic experiment. The object is to establish a means, with emphasis on the high school, of conveying civic consciousness to students. Because economically and socially New England presents an especially interesting problem, effort will be made under this plan to convey important economic and social truths to the youth of New England.

A series of lectures have been arranged of special interest to high-school teachers, although of equal importance to all teachers and to the public, on "Social and Economic Conditions in New England." The course will run throughout the second semester of the school year.

Fifteen specialists in their respective lines—business men, educators, and social workers—will co-operate in the series. The lectures will attempt to reach the students through training their teachers.

The early lectures of the series are typical and are as follows:

"Industrial Leadership" by Melville D. Liming, manager, Bureau of Commercial and Industrial Affairs, Boston Chamber of Commerce.

"Better Business Methods" by Henry P. Kendall, of the Kendall Mills, Inc.

"Peace through Justice in Industry: The Employee" by Frank H. McCarthy, general organizer, American Federation of Labor.

"Peace through Justice in Industry: The Employer" by Howard Coonley, president, Walworth Manufacturing Company.

"Meeting Outside Competition" by Erwin H. Schell, Committee on New England Industries, Boston Chamber of Commerce.

"Religious and Race Prejudice" by Rabbi Harry Levi, Temple Israel.

A HIGH-SCHOOL SERVICE BUREAU

The following announcement is issued by the College of the City of New York:

The School of Education of the College of the City of New York announces the establishment of a Bureau of High School Service, under the direction of Professor J. Carleton Bell. The purpose of this bureau will be to assist teachers, heads of departments, and administrative officers of the high schools of New York City in the solution of their problems.

Aid will be extended, so far as the facilities of the bureau will permit, in conducting tests of intelligence, in developing new tests to meet the needs of the high schools, in planning the classification of pupils, in devising remedial treat-

ment for pupils with special deficiencies, in giving standard tests in high-school subjects, in experimenting with prognostic tests, and in making available to high-school teachers materials that will be of assistance to them in their work.

Particular attention will be paid to the problem of ascertaining pupils' needs and of adjusting instruction to these needs. In co-operation with the Educational Clinic of the College of the City of New York, the new bureau is making a comparative study of group tests of intelligence suitable for use in high schools.

AMERICAN FELLOWSHIPS FOR BRITISH STUDENTS

The Commonwealth Fund announces through Max Farrand, its educational adviser, the establishment of twenty annual fellowships for British students at American universities, similar to the Rhodes scholarships for American students. The fellowships are established in the belief that international understanding can be encouraged through international educational opportunities. They will be awarded by a special committee, of which the Prince of Wales will be honorary chairman, from nominations made by recognized universities in Great Britain and Ireland.

Each fellowship will be for two years with the possibility of a third year being granted to a limited number. While students are to be permitted to select the universities in which they wish to study, not more than three fellowships will be awarded to any one American university in any one year. The announcement reads:

In establishing these, to be known as the Commonwealth Fund Fellowships, the directors of the Commonwealth Fund have been impelled by two considerations. The educational opportunities provided for American students by the Rhodes scholarships have proved their value and have been eagerly sought by young college men of this country. Through them many American students have been enabled not only to enrich their education from an academic point of view but, through study and travel in England and on the Continent, to gain a wider understanding and outlook upon world affairs. It seems fitting that by a reversal of the process similar opportunities should be offered to British students.

Further, it is the belief of the Commonwealth Fund that international understanding can be forwarded in no more practicable way than through the provision of such international educational opportunities. Young men and women of character and ability, potential leaders in their own country, becoming familiar through residence and education with the institutions, customs, and ways of thinking of another country, can but be a force for mutual understanding and good feeling. The importance of unity of thought and purpose on the part of the two great English-speaking nations of the world should lend a special

value to reciprocal educational opportunities between the United States and Great Britain.

These fellowships for British graduate students will be available at any of the twenty-six universities in the United States which were on January 1, 1925, members of the Association of American Universities. Other institutions may later be added to the list. British subjects, domiciled in England, Scotland, Wales, or Ireland, may be nominated by recognized universities in Great Britain or Ireland to a British Committee of Award which will examine each candidate. Appointments will be made of either men or women, unmarried and not over thirty years of age, who satisfy the Committee of Award as to their character, ability, qualities of leadership, health, and general fitness. Twenty fellows will be appointed each year from among candidates.

PRIVATE SECONDARY SCHOOLS ORGANIZE

The Bureau of Education issues the following news item:

Leading secondary schools and preparatory schools of the United States are organizing effectively for co-operative work of mutual benefit. Conferences have recently been held by representatives of such schools as Andover, Arden, Bancroft, Buckley, Chestnut Hill, Exeter, Baldwin, Groton, The Hill, Hotchkiss, Lawrenceville, Loomis, Milton, Pomfret, Rivers, St. George's, St. Paul's, and Tome; and definite action has been taken toward uniformity in instruction, examinations, entrance requirements, and the like.

A board has been created to prepare papers and supervise examinations for entrance to secondary schools six, five, and four years from college. Examiners will be designated in English, mathematics, Latin, and French. It is hoped that such co-operation will be brought about that examinations under the direction of this board may be held at central points to obviate the necessity of attendance by representatives of the several schools.

The prospects for the establishment of standard requirements and for an efficient examining board are said to be excellent.

COLLEGE AND HIGH SCHOOL

In his annual report President A. L. Lowell, of Harvard, points out what seems to him to be the contrast between college methods of training and study and those of the high school. With regard to Harvard's problems in dealing with Freshmen, he says:

In part, our difficulty lies in the very nature of the transition from school to higher education. At school a boy does set tasks under constant supervision. His time in school hours and at boarding school throughout almost his whole day is apportioned for him, and he follows a carefully prescribed régime. His tasks are short and definite, and he is held to account for them at brief intervals. Everyone who has taught a freshman course in a subject requiring the use of books dealing with large questions is aware of the fact that Freshmen can

read paragraphs or a few pages covering a definite point but that they can rarely read a book; that is, they have not the habit of sustained thinking needed to grasp and hold a continuous line of thought and take in its full meaning. Their comprehension deals rather with a succession of points than with a train of thought, and yet this last is the very essence of intellectual life.

In higher education all this should be very different. The student should then reach a point where he can largely direct his own work and thought toward a distant object, with the guidance, the aid, and the inspiration of mature scholars. Not otherwise will he be capable of developing his natural capacities to the utmost in his life's career, whatever it may be. The sooner a man can reach that point, the better for him and the more rapid will be his intellectual progress.

The contrast is somewhat overdrawn. There is a great deal of teaching in the freshman year of college which does not reach the high level of preparation for independent thinking which President Lowell regards as the goal of college education. On the other hand, there is no small amount of work in the high school which cultivates independence on the part of the students quite as successfully as does the work in many higher institutions. There is undoubtedly, and very properly should be, a difference, due to intellectual maturity, between the performances of high-school students and the performances of those who continue their education in college, but a willingness to draw sharp lines such as President Lowell has drawn is to be attributed to overemphasis on hopes and ideals and failure to collect all of the facts.

It is becoming clearer every day that the period of secondary education includes freshman and sophomore instruction in college. It would probably be more accurate for the Harvard authorities to attribute any difficulties which they encounter in handling Freshmen to the fact that they attempt too abruptly to discontinue the "school" form of supervision of students and attempt a type of instruction which is, in many instances, far beyond the students' immature powers of acceptance.

WHAT IS INTELLIGENCE?

FRANK N. FREEMAN
University of Chicago

The designers of mental tests have frequently said that it is not only unnecessary but probably futile to raise the question which is the subject of this article, and that the answer would be of no use if we could find it. Physicists have been able, it is pointed out, to measure electricity without knowing its nature, and, it is asserted, we can do the same with intelligence.

It is unlikely that the argument by analogy throws much light on the value of the quest for information regarding the nature of intelligence, but even the analogy of the physical sciences should suggest that it is productive to analyze the facts which appear on the surface of things and to penetrate, so far as we may be able, into the deeper constitution of the material with which the science deals. In psychology, then, we may expect to derive profit from an examination of the nature of intelligence. Both in the measurement of intelligence and in the attempt to set the conditions for its proper development, an understanding of its nature should be of value.

It may fairly be said that psychologists are agreed in the belief that mental tests, particularly intelligence tests, have indicated the existence of general intelligence or general capacity. They are not agreed, however, regarding the exact nature of general intelligence. To put the matter briefly, it is agreed *that* intelligence is, but it is not agreed *what* it is.

There is also pretty general agreement that tests have shown that intellectual capacity is not a mere collection of specialized, disconnected capacities. The fact of correlation between individual tests and between groups of tests indicates that there is a high degree of relationship between various mental traits or the compact groups of traits which are measured by the particular tests. Furthermore, there is a certain system in the correlation between mental traits. Tests of some traits or tests of some types correlate regularly to a

high degree with other tests. Particular pairs of tests, moreover, correlate more highly than do other pairs of tests. In general, tests which require the manipulation of ideas correlate with one another to a high degree as compared with tests of sensory capacity, motor reaction, or perception. There is an organization among the intellectual traits according to which some are knit together rather closely while others are more largely independent of one another.

The evidence from the correlation between mental tests indicates the substantial correctness of our common-sense judgments concerning the existence of degrees of intelligence. In ordinary life, we pass judgment concerning the relative intelligence of individuals of our acquaintance. Some we call dull, and others we call bright. We do not mean by this that one individual is incapable of doing certain specialized tasks and that the other is capable of doing these specialized tasks; we mean that the one will be found deficient in all sorts of tasks demanding intellectual capacity, whereas the other will be found competent in all kinds of intellectual performance. These generalized judgments are not inconsistent with the recognition of a certain degree of specialization within the general field of intellectual activity.

We may approach the further question as to what intelligence is, first, by making a survey of the definitions which have previously been offered and, second, by attempting to find a definition of our own.

Many attempts have been made to describe or define intelligence. Binet, in a study which he made in the middle nineties, sought for a measure of intelligence in tests of attention. Ebbinghaus took as his guide in the search for an intelligence test the conception of intelligence as the ability to combine or to see the relation between items of experience. Spearman, in his first experiments, came to the conclusion that intelligence is ability to discriminate fine differences. Burt defined intelligence as "the power of readjustment to relatively novel situations by organizing new psycho-physical combinations."¹ Binet, as quoted by Terman, describes intelligence as "(1) the tendency of thought to take and maintain a definite direction, (2) the

¹ C. Burt, "Experimental Tests of General Intelligence," *British Journal of Psychology*, III (1909), 168.

capacity to make adaptations for the purpose of attaining the desired end, and (3) the power of self-criticism."¹ Stern defines intelligence similarly as "a general capacity of an individual consciously to adjust his thinking to new requirements: it is general mental adaptability to new problems and conditions of life."² Finally, Spearman describes the general factor to which intelligence is reduced as a general fund of energy. This last definition we shall examine in more detail.

As a basis for further discussion, we may refer to the symposium on the nature and problems of intelligence which was published by the *Journal of Educational Psychology* in 1921.³ Fourteen psychologists contributed to this symposium. Each of these men gave the subject careful consideration, and their answers deserve some analysis.

It may clear up our thinking at the beginning to mention the fact which was noted by Henmon, namely, that psychologists have limited the term "intelligence" to a narrower scope than is covered in the commonly accepted meaning of the term. Intelligence, in its usual acceptance, includes both capacity for acquiring knowledge and knowledge itself. A person would not be called intelligent, in the ordinary use of the term, if he were bright but knew little. In its narrower technical use, however, intelligence is distinguished from knowledge, and the hypothesis is that a person may be very intelligent and yet very ignorant. Henmon protests against this limitation of the term, and from the point of view of general usage he is right. It is probably too late, however, to stem the tide of current technical usage and to prevent the use of the term in a technical sense to refer to capacity as distinguished from knowledge or acquisition. This is the sense in which the term is used here, although the writer would prefer to use some such term as "brightness" and to reserve the term "intelligence" for the broader meaning.

While there is great variation in the definitions proposed by the founding psychologists, it is evident that there is a general disposition

¹ L. M. Terman, *The Measurement of Intelligence*, p. 45. Boston: Houghton Mifflin Co., 1916.

² W. Stern, *Psychological Methods of Testing Intelligence*, p. 3. Translated by G. M. Whipple. Baltimore: Warwick & York, Inc., 1914.

³ "Intelligence and Its Measurement: A Symposium," *Journal of Educational Psychology*, XII (March, April, and May, 1921), 123-47, 195-216, 271-75.

to define intelligence in terms of capacity for adjustment; that is, intelligence is defined as having objective rather than subjective significance. This brings the definition of the term into harmony with the definition of feeble-mindedness which has long been current. A feeble-minded person has been described legally and otherwise as one who is incapable of taking care of himself and of making a living in the ordinary situations of life. This, of course, does not mean that every person who fails to succeed is feeble-minded. A person may fail for other reasons. Furthermore, it does not mean that material or vocational success is a complete measure of intelligence. A person may seek other kinds of success than material or financial success. In such cases, he is to be measured in terms of his aim or in terms of the kind of success that he seeks rather than in terms of financial or material gain. The criterion, however, remains one of adjustment or of behavior.

When we analyze the conditions of success, even the broad types of success which have been mentioned, we find, as has already been hinted at, that they are not to be reduced to a single trait. A split here arises among the contributors to the symposium. Some would include all of the traits which make for success, but others would narrow them down to those traits which we ordinarily denominate intellect. Some, for example, would include perseverance, emotional balance, freedom from undue suggestibility, and energy. The writer was disposed to include such traits as these in intelligence and to interpret it in this broad fashion.

The prevailing opinion, however, is that it will promote clearness of thinking and of the analysis of capacities to distinguish between the temperamental, emotional, and volitional traits, which are factors in successful adjustment, and the intellectual traits taken in the narrower sense. With this view the writer is now in agreement. It is, after all, a matter of terminology, and the question is, Which use of the term is the most serviceable? We may conclude, then, that intelligence refers to certain of the mental factors which produce or tend to produce successful adjustment.

Spearman¹ has made the most elaborate analysis of intelligence

¹ C. Spearman, *The Nature of "Intelligence" and the Principles of Cognition*. London: Macmillan & Co., 1923.

of any writer. He conforms to the view that the term "intelligence" should be employed so as to exclude the non-intellectual traits, such as temperament, will, and social attitudes. Within the field of intellectual operations, however, he makes a novel distinction. He lays down two sets of principles; one set he calls qualitative principles and the other set quantitative principles. The qualitative principles comprise a description of the manner in which thinking proceeds. They are three in number and concern the apprehension of experience, the eduction of relations, and the eduction of correlates. We should ordinarily describe these processes as perception, apprehending the relation between objects, and passing from the idea of an object and a particular form of relation to the idea of a second object. The last process is illustrated by thinking of a word—"white"—and of a relation—"opposite"—and from these educing the word "black."

These qualitative principles do not furnish the basis for distinctions among degrees of intelligence, according to Spearman. They merely furnish a description of the functioning of intellect which holds good wherever it is found. Individual differences are due to the existence of quantitative principles. These concern the amount of energy at the disposal of the nervous system. An individual possesses a certain fixed amount of nervous or mental energy, and it is this which distinguishes him from other individuals. This hypothesis goes beyond the descriptive account of intelligence, which is our immediate topic, and we shall return to it in connection with an attempt to explain the nature of intelligence.

The recent summary of the criteria of intelligence by Thorndike¹ distinguishes between the criteria which are actually used and those which he regards as theoretically correct. Intelligence tests actually depend, he says, on knowledge of facts, mental maturity, and, to a lesser degree, ability to learn. The capacities which psychologists hold to be the chief constituents of learning are adaptability to a novel situation and relational thinking. The last item refers to Spearman's theory. If the writer's interpretation of Spearman is correct, relational thinking is not a criterion for the measurement of individual differences.

¹ E. L. Thorndike, "Measurement of Intelligence, I: The Present Status," *Psychological Review*, XXXI (May, 1924), 219-52.

There are, then, many ways of describing intelligence. We may, as has already been suggested, describe it by exclusion. We may say that it includes those mental traits which are not temperament, not emotion, and not volition. This will at least assist us in forming the idea. We may describe intelligence by reiteration; that is, we may say that intelligence is that type of adjustment which we ordinarily designate as intellectual. We may use other descriptive expressions, such as "power of good responses from the point of view of truth or fact."¹ We may say that intelligence includes the higher mental processes, such as concept formation, association, thinking, and so on, as distinguished from sensory discrimination and sensori-motor adjustment. Taking advantage of the previous attempts, we may formulate a descriptive definition of intelligence as follows: *Intelligence may be regarded as the capacity for successful adjustment by means of those traits which we ordinarily call intellectual. These traits involve such capacities as quickness of learning, quickness of apprehension, the ability to solve new problems, and the ability to perform tasks generally recognized as presenting intellectual difficulty because they involve ingenuity, originality, the grasp of complicated relationships, or the recognition of remote associations.*

The foregoing survey of attempts to define intelligence and the concluding summary present a series of statements which are chiefly descriptive in character. We began with the citation of evidence that there is such a thing as intelligence, but we ended with what appears to be a rather unorganized collection of abilities. This description may serve the purpose of a rough guide for the construction of tests or for teaching, but it is not satisfactory as an ultimate scientific formulation.

Whatever our ultimate formulation, it is pretty clear that we cannot consider the ability measured by any one test as giving us a simple representation of intelligence. Any test will include both too much and too little. It will include elements which are foreign to intelligence, and it will fail to include all of the aspects which intelligence may display. We must find our formulation in an analysis and comparison of the tests, then, and not in the surface characteristics of the tests themselves.

¹ E. L. Thorndike in "Intelligence and Its Measurement: A Symposium," *Journal of Educational Psychology*, XII (March, 1921), 124.

The earlier attempts to define intelligence sought to identify it with one of the recognizable intellectual traits or processes. We have already seen examples of this type of definition. It appears in the identification of intelligence with attention, with discrimination, and with combining or associative ability. The difficulty with these suggestions is that they are partial. All of these processes as well as others, such as memory, are necessary to intelligence. It cannot, therefore, be identified with any one.

A second type of suggestion seeks to escape from the difficulty just mentioned by identifying intelligence with the sum total or composite of the more particular traits. Thus, the person with good memory, good ability to concentrate his attention, keen discrimination, and ready association may be regarded as the intelligent person. This point of view admits of variations in the relative excellence of the various forms of mental activity in particular individuals and recognizes the possibility of some compensation among traits. The definition of intelligence as a composite does not, however, give a satisfactory explanation of the fact that some tests are much better measures of intelligence than others. Furthermore, it does not distinguish between relatively mechanical or routine operations and the process of novel adjustment, and psychologists have become convinced that this distinction is a vital one.

A third suggestion abandons all attempts to define intelligence in terms either of single mental processes or of their composite and resorts to a purely objective description in terms of the capacity for making adjustments to new situations or ease of learning. This is the definition which is perhaps most widely accepted. It has the merits of objectivity, simplicity of meaning, and emphasis on the adaptive character of intelligence. The objections to it are, first, that it fails of a real psychological analysis and, second, that it is too inclusive. Some forms of learning—for example, the development of manual skill—would commonly be regarded as at least poorer evidences of intelligence than are other forms. Again, as has already been pointed out, successful adjustment demands traits of will and of emotion as well as intellectual traits.

Particular attention may be given to the hypothesis of Spearman because of the elaborateness with which he has developed it.¹ He

¹ C. Spearman, *op. cit.*, chaps. i, ix, and xxi.

explains intelligence, or the general factor which is his substitute for intelligence, as the stock of energy in the brain or nervous system. Every mental process, he suggests, is dependent on this general factor and on a specific factor. The general factor is common to all mental acts and is constant for the individual. It consists of the energy which is at the disposal of the whole brain. The specific factor is the structure of some particular area or group of neurones in the brain. These neural groups are described as the "engines," which are set in operation by the mental energy. The various specific factors are not correlated with one another nor with the general factor. Individual differences are explained thus: "One man may excel another in total output (involving his amount of disposable 'energy') or else only in output of some special kind (making calls upon the efficiency of his corresponding 'engines')." The first difference would be a difference in intelligence and the second a difference in special capacity.

If the adjustment notion is merely a formulation of the surface facts of observation, Spearman's suggestion carries us beyond the reach of observation altogether. Its merit is that it apparently conforms to the statistical facts of the intercorrelation between tests. It presents certain difficulties, however, when we attempt to think through its implications from the psychological and physiological points of view.

Spearman's explanation in detail is something like this. A particular test, say an opposites test, correlates very closely with another test, say a completion test. This is because each depends chiefly on the general factor or the store of energy in the brain and very little on the structure of the brain. Two other tests, say a test of speed of movement and a test of pitch discrimination, correlate scarcely at all. This is because they depend almost entirely on the structure of two areas or groups of neurones and require scarcely any nervous energy. This seems suspiciously like an explanation *ad hoc*, for it is difficult to imagine why an opposites test should require more mental energy than a pitch-discrimination test, and it is difficult to conceive physiologically of a condition in which the operation of one set of neurones takes place with the expenditure of almost no nervous

¹ C. Spearman, *op. cit.*, p. 136.

energy while the operation of another set requires the expenditure of a large amount of nervous energy. The hypothesis, then, does not grow out of an analysis of the mental processes, and it meets with certain difficulties of application.

While recognizing the temerity of the attempt to improve upon the long list of definitions and explanations of intelligence which are already in existence, the writer ventures to make a suggestion which appears to him to meet both the psychological and the physiological demands. The suggestion, in brief, is that *intelligence is measured by facility of pattern formation among ideas or facility in the organization of thought*. This means that the intelligent person is one who can both break up old ways of thinking and develop new ways of thinking in adjustment to the demands which the situation makes upon him.

Take an illustration of the exercise of intelligence and see how this definition applies. The individual is confronted with a situation demanding something more than the exercise of previously acquired habits of response. He must do something new. This is a situation which must be met by the exercise of intelligence. Our formula agrees with the prevailing definitions at this point. It also attempts, however, to analyze what takes place in the individual's intelligent response. The individual in such a case goes over his past experience, picks out the elements which have a bearing on the present problem, and weaves them together into a plan of action or a hypothesis to explain the facts. This plan of action or this hypothesis or theory is a new thought pattern. It consists of old elements of experience woven into a new arrangement.

It will be observed that this definition is not really new in its fundamental principle. It could hardly be expected to challenge attention if it were. It conforms to the fact that has been repeatedly observed, namely, that intelligence operates in dealing with novel situations. It includes the formula of Ebbinghaus—which, though an early definition, is a very illuminating one—that intelligence is the combining ability or the ability to put things together and see their relation. It agrees with the general tenor of the definition of intelligence as learning capacity but narrows it down somewhat and formulates it a little more specifically.

The formula which has been proposed accords, furthermore, with the fact, already noted, that intelligence must be so defined that it includes all the ordinary intellectual operations and is not confined to any one. Memory, for example, is necessary in order to give the material of thought which is to be woven into new patterns. Discrimination and analysis are required in order to provide the elements which enter into the new combinations. Association and synthesis are obviously important stages in the process. Concept formation represents a kind of pattern formation of a rather slow and unattentive sort, and reasoning is thought organization made formal and with its stages explicitly thought out. Thus we seem to have the kind of formula we need—one which can be applied to the various intellectual processes and which finds in these various processes a common characteristic.

As the definition has been stated, it emphasizes the existence of ideas and their control as the essential characteristics of intelligence. This may seem to some to make the definition too narrow. It could be broadened by substituting "elements of experience" for "ideas" or "thought," but the writer believes that the emphasis on ideation in a definition of intelligence is justified. It does not exclude either scientific or mechanical achievement from the realm of intelligence, since even material objects and conditions above the level of purely routine or habitual action are dealt with by means of ideas.

What are the physiological implications of this definition? It obviously emphasizes the process of breaking up old, habitual or native, neural associations or connections and forming new ones. It involves analysis and synthesis among the neurone groups. This is precisely the sort of thing of which the high-grade brain is capable. Flechsig pointed out years ago that the chief large morphological difference between the brains of the highest mammals below man and the brain of man is in the extensiveness of the association areas in the latter. These areas are the ones which do not mediate either specific sensations or specific movements. They make possible connections, patterns. The high-grade brain in the evolutionary series, then, is one which permits of the extensive formation of new neural patterns. So, by analogy, we may plausibly conceive of the high-grade individual brain, among human brains, as the one which is

by nature furnished with the mechanism of association, permitting ready and extensive formation of new patterns.

The step from this abstract psychological and physiological analysis to the facts of observation is not a long one. The bright individual is the one who can readily apprehend new ideas. His mind is flexible. He can abandon old beliefs and adopt new ones when the new ones better meet the conditions. He can follow an intricate discussion, one having many elements which must be apprehended in their relation to one another. Suggested solutions of a problem come to his mind readily, and the ideas which thus appear out of the limbo of his experience sometimes seem at first sight to have little bearing on the case. He can discover for himself the remote connection which makes the fact pertinent, while his duller witted companion can recognize it only when it is explicitly pointed out to him. All of these characteristics will be seen to conform very well to the definition of intelligence as facility of pattern-forming.

THE WILL-TEMPERAMENT OF UPPER-GRADE AND HIGH-SCHOOL PUPILS

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The value of intelligence tests as a means of pointing out individual differences among children is seldom questioned. It is also recognized that there are fundamental differences which are not intellectual and which cannot be measured by tests of intelligence. Chief among these are differences in traits of character. When one considers that the correlation of intelligence with school grades is usually found to be little more than .50, the value of a test that would measure with accuracy factors other than intelligence becomes apparent.

The Downey will-temperament test attempts to measure non-intellectual traits. There are two forms of this test, the individual test and the group test. The study reported in this article was made through the use of the group test.

The Downey will-temperament test was described by Professor Freeman in an earlier article.¹ It tests speed of movement, freedom from load, flexibility, speed of decision, motor impulsion, reaction to contradiction, resistance to opposition, finality of judgment, motor inhibition, interest in detail, co-ordination of impulses, and volitional perseveration. The first four traits are classified under speed and fluidity of reaction; the second four, under forcefulness and decisiveness of reaction; and the last four, under carefulness and persistence of reaction.

The Downey Group Will-Temperament Test was given to 157 pupils in four small Kansas schools, distributed by grades as shown in Table I. In intelligence, the subjects represented a normal group. The average I.Q. was 97, the range in I.Q.'s being from 61 to 127.

In scoring, the norms in the manual for the group test were

¹ Frank N. Freeman, "Tests of Personality Traits," *School Review*, XXXIII (February, 1925), 95-106.

followed for all of the separate tests except speed of movement and finality of judgment. As the norms for these two tests did not seem to be well adapted for young subjects, these tests were scored according to revised norms worked out by the writer.

Table II shows the average scores for the 157 subjects. The profile for the group is shown in Figure 1. It will be observed that,

TABLE I
DISTRIBUTION BY GRADES OF 157 PUPILS IN FOUR
SMALL KANSAS SCHOOLS

Grade	Number of Pupils	Percentage of Pupils
VII.....	31	19.7
VIII.....	14	8.9
IX.....	32	20.4
X.....	30	19.1
XI.....	27	17.2
XII.....	23	14.7
Total.....	157	100.0

TABLE II
AVERAGE SCORES OF 157 PUPILS ON THE DOWNEY GROUP
WILL-TEMPERAMENT TEST

Trait	Score
Speed of movement.....	5.2
Freedom from load.....	3.9
Flexibility.....	4.4
Speed of decision.....	3.5
Motor impulsion.....	5.4
Reaction to contradiction.....	6.3
Resistance to opposition.....	4.1
Finality of judgment.....	5.5
Motor inhibition.....	2.7
Interest in detail.....	5.4
Co-ordination of impulses.....	3.5
Volitional perseveration.....	5.6
Total.....	55.5

in general, the scores for forcefulness and decisiveness of reaction are higher than the scores for carefulness and persistence of reaction or the scores for speed and fluidity of reaction. The total of the average scores for forcefulness and decisiveness of reaction is 21.3; for speed

and fluidity of reaction, 17.0; for carefulness and persistence of reaction, 17.2. The high point of the profile is reaction to contradiction; the low point is motor inhibition. The profile suggests that children of the high-school age tend to be *aggressive* and *wilful*. This agrees with the findings of Dr. Downey.¹

The scores, taken as a whole, are not high. The average score for the twelve traits is 4.6.

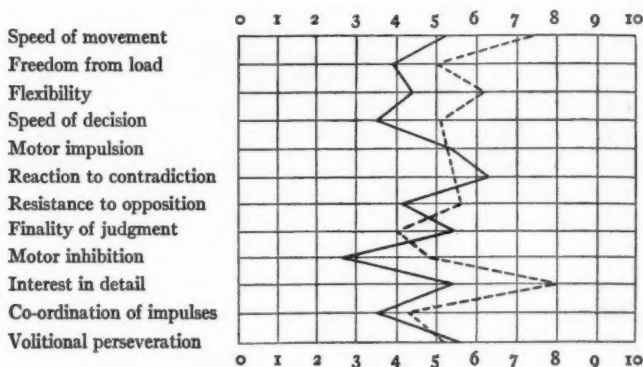


FIG. 1.—Profiles for 157 pupils and 12 adults (full-drawn line, pupils; broken line, adults).

For purposes of comparison, the Downey test was given to twelve adults. Ten of these were teachers; one was a former teacher, and one was a medical student. The profile for these twelve adults is shown in Figure 1. The general level of the adult profile is higher than the general level of the profile for the pupils. The adults score considerably higher on all of the tests for speed and fluidity of reaction. The school children score higher on all of the tests for forcefulness and decisiveness of reaction except resistance to opposition. The adults lead in all of the tests for carefulness and persistence of reaction except volitional perseveration.

The superiority of the adults is particularly marked in interest in detail. The adults also score somewhat higher than the pupils in speed of movement, flexibility, speed of decision, and motor inhibition.

¹ June E. Downey, *The Will-Temperament and Its Testing*, p. 264. Yonkers-on-Hudson, New York: World Book Co., 1923.

tion. The comparison would be of more value if the adult group were larger.

Table III shows the average scores by grades of the 157 pupils on the Downey test. The total scores show that there tends to be an increase in score with advance in grade. An inspection of the scores on each trait indicates that there is a marked tendency for the more advanced grades to score higher on the five traits of flexibility, finality of judgment, motor inhibition, interest in detail, and co-ordination of impulses. For the other traits, there is little or no evidence that the higher grades tend to score higher. In general, one may say

TABLE III
AVERAGE SCORES BY GRADES OF 157 PUPILS ON THE DOWNEY GROUP
WILL-TEMPERAMENT TEST

Trait	Grade VII	Grade VIII	Grade IX	Grade X	Grade XI	Grade XII
Speed of movement.....	5.2	6.4	5.4	3.8	5.4	5.9
Freedom from load.....	3.6	4.3	4.3	4.0	3.9	3.5
Flexibility.....	3.5	4.4	4.2	4.5	4.7	5.2
Speed of decision.....	3.7	4.2	3.3	3.0	3.5	3.7
Motor impulsiveness.....	5.6	6.1	5.0	5.1	5.4	5.5
Reaction to contradiction.....	5.5	6.5	5.8	6.6	7.3	6.4
Resistance to opposition.....	4.5	3.3	3.7	3.2	5.1	4.8
Finality of judgment.....	4.1	5.1	5.1	6.1	7.0	5.8
Motor inhibition.....	1.7	3.1	2.8	2.8	3.1	3.1
Interest in detail.....	4.1	4.7	5.2	6.0	5.8	6.6
Co-ordination of impulses.....	1.8	2.5	3.5	4.9	3.9	4.4
Volitional perseveration.....	5.9	4.8	5.1	5.7	5.9	5.9
Total.....	49.2	55.4	53.4	55.7	61.1	60.8

that the more advanced pupils tend to surpass the pupils in the lower grades on the tests for carefulness and persistence of reaction.

Of the subjects tested, eighty-five were boys, and seventy-two were girls. The average scores for these two groups are shown in Table IV. It will be observed that the scores show a striking similarity. In general, the girls score slightly higher than the boys, but they do not show marked superiority in any of the traits. The boys surpass the girls by trifling margins at three points—motor impulsiveness, finality of judgment, and co-ordination of impulses. On motor inhibition, the scores are the same for the two groups. The girls score higher than the boys in the other eight traits. The largest

difference is in volitional perseverance, where the girls lead by .6 point.

On examination, the profiles for the various individuals presented striking dissimilarities. No one general type was discernible. A careful inspection of the profiles, however, showed that the majority of them could be grouped into a number of general types. A few of the profiles were so individual in character that they could not be classed with any type.

The writer was able to discover twelve types of profile. Scores for profiles representing each of these types are given in Table V.

TABLE IV
AVERAGE SCORES OF 85 BOYS AND 72 GIRLS ON THE
DOWNEY GROUP WILL-TEMPERAMENT TEST

Trait	Boys	Girls
Speed of movement.....	5.1	5.3
Freedom from load.....	3.7	4.2
Flexibility.....	4.1	4.6
Speed of decision.....	3.4	3.6
Motor impulsiveness.....	5.5	5.3
Reaction to contradiction.....	6.1	6.6
Resistance to opposition.....	4.0	4.3
Finality of judgment.....	5.6	5.4
Motor inhibition.....	2.7	2.7
Interest in detail.....	5.3	5.5
Co-ordination of impulses.....	3.6	3.5
Volitional perseverance.....	5.3	5.9
Total.....	54.4	56.9

The other profiles in each type are not, of course, identical with the representative profile. Each profile presented, however, sets forth certain characteristics which the profiles in that group have in common.

The first six profiles are illustrative of three pairs of contrasting types.

Type A is representative of a group which scores very low on tests for speed and fluidity of reaction. There is a tendency to score high on the tests for forcefulness and decisiveness of reaction and to do well on the tests for interest in detail and volitional perseverance. Ten individual profiles of this type were discovered.

Type B is in contrast to Type A with respect to the tests for

speed and fluidity of reaction. In this profile the scores are high on these traits. Subjects of this type tend to react to contradiction and to score low on the traits of carefulness and persistence. Profiles of this kind do not occur as often as do those of Type A.

Type C scores low on all of the tests for forcefulness and decisiveness of reaction and scores high in speed of movement and on the traits of carefulness and persistence except motor inhibition. This type of profile is not frequent. It is uncommon among the profiles of

TABLE V
TWELVE WILL-TEMPERAMENT TYPES

TRAIT	TYPES											
	A	B	C	D	E	F	G	H	I	J	K	L
Speed of movement....	2	9	9	7	7	4	7	3	1	9	3	3
Freedom from load....	1	9	3	8	8	1	1	1	1	2	2	3
Flexibility.....	2	9	6	2	4	6	3	6	2	5	4	3
Speed of decision....	1	9	5	3	4	2	1	3	4	6	2	2
Motor impulsion.....	5	4	4	7	5	4	4	6	6	8	4	7
Reaction to contradiction.....	8	9	1	9	10	10	3	9	10	5	4	2
Resistance to opposition.....	2	4	2	10	5	1	2	2	5	2	4	10
Finality of judgment....	10	4	1	8	9	6	9	5	1	2	5	5
Motor inhibition.....	2	1	1	1	1	5	4	2	1	1	5	3
Interest in detail.....	5	5	7	5	2	8	7	7	4	5	1	5
Co-ordination of impulses.....	2	1	6	8	1	8	10	4	2	4	4	2
Volitional perseverance.....	7	5	7	8	1	8	3	8	6	3	3	7
Total.....	47	69	52	76	57	63	54	56	43	52	41	52

the seventh- and eighth-grade pupils and is entirely absent in the grades above the freshman year of the high school.

Type D scores high on all tests for forcefulness and decisiveness of reaction. The type of profile which has its high points among these traits is much more frequent than is Type C. However, some of the pupils classified with Type D score considerably lower on resistance to opposition than this representative case. Scores of 8, 9, and 10 on finality of judgment and reaction to contradiction are very common, especially among pupils in the upper years of the high school.

Type E scores low in the last four traits, those of carefulness and persistence. Subjects belonging to this type tend to be swift of move-

ment, free from load, and self-confident. Eleven profiles of this kind were discovered.

Type F scores high on traits of carefulness and persistence. It is true that the score on motor inhibition is only 5, but the average score on this trait is less than 3. Individuals of this type tend to score low on speed tests. Profiles of this nature occur with about the same frequency as those of Type E.

Type G scores very high in co-ordination of impulses and finality of judgment. Most pupils score below 5 in co-ordination of impulses, but there are a few, all above the eighth grade, who make scores of 9 or 10 on this trait. Just why subjects who score high in co-ordination of impulses should score high in finality of judgment as well is not clear. Such a relation seems to exist, however, in several cases. There is a tendency for this type to score low in volitional perseveration. Seven profiles of this kind were found.

There is a type of profile which is very irregular. It tends to be high on flexibility, motor impulsion, reaction to contradiction, finality of judgment, interest in detail, and sometimes volitional perseveration. It is somewhat similar to the average profile, for the whole group. Profiles of this kind, represented by Type H, are more numerous than profiles of any other type.

The trait most frequently receiving a high score is reaction to contradiction. Often the profile will be high at this point while most or all of the rest of it is low. Type I is illustrative of such profiles.

Type J scores high in speed of movement and motor impulsion and very low in motor inhibition. One would think that a child with a profile of this kind might be a disciplinary problem. This type of profile is rather uncommon.

Type K is typical of the low-level subjects. The profiles for these pupils show no outstanding traits, and their total scores are much below average. Six profiles of this kind were found.

The majority of the profiles show low scores on resistance to opposition. Occasionally, however, one is found which shows an unusually high score for this trait. Subjects of this group tend to score high on motor impulsion also but low on most of the other traits except volitional perseveration. This group is illustrated by Type L.

The writer selected the twenty-seven pupils who showed the

greatest difference between rank in average school grade and rank in I.Q.¹ The profiles of these subjects were studied carefully in an effort to determine whether or not such differences could be explained by will-temperament. It is obviously impossible in this brief report to review in detail each of the twenty-seven cases. The following case, therefore, is chosen as typical:

Case 1.—Girl, age 13 years, 6 months. In eighth grade. I.Q., 109; average school mark, 83. Rank in group: I.Q., 33.5; average mark, 95. Rank in class of ten: I.Q., 2; average mark, 5.

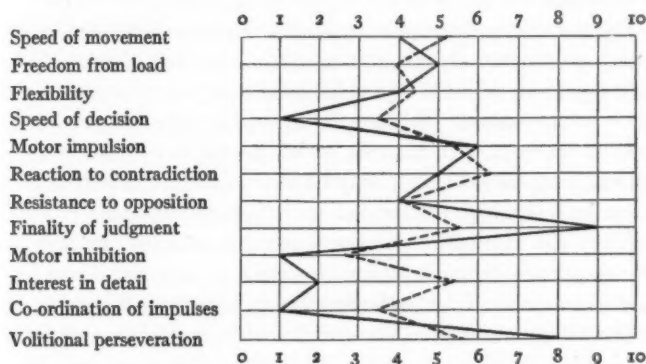


FIG. 2.—Profiles for Case 1 and 157 pupils (full-drawn line, Case 1; broken line, 157 pupils).

The profile of Case 1 is shown in Figure 2. The total score is 50. This profile indicates that the pupil thinks slowly, is inclined to be a little impulsive, is lacking in care for detail, has poor self-control, holds with tenacity to original judgments, and is persevering. There is only one outstanding score favorable to good school work—the high score on volitional perseverance. The low scores on speed of decision, motor inhibition, and interest in detail imply character traits which are in opposition to a high type of school work. As the profile of Case 1 seems, on the whole, to be somewhat opposed to

¹ The Otis Self-administering Tests of Mental Ability were given to all subjects. The Higher Examination, Form A, was administered to the high-school pupils and the Intermediate Examination, Form A, to the elementary-school pupils. The I.Q. was determined from the point score.

high marks in school, it suggests an explanation for the lack of agreement between apparent ability and school performance.

A detailed study of the profiles of the twenty-seven cases yielded the following results: number of cases for which the Downey test suggested no explanation, 10; number of cases for which will-temperament seemed partly responsible, 10; number of cases which seemed well explained by will-temperament, 7. In other words, in seventeen out of twenty-seven cases, or in 63 per cent of the cases studied, temperament seemed to be either partly or largely responsible for the situation.

The preceding discussion indicates that the form of the will-profile has an influence on school marks in a number of cases. It is of interest to know whether or not the total score on will-temperament affects school marks. If there is a marked tendency for school marks to increase with increase in will-temperament score, then a high will-temperament score may be used in the prediction of school success just as a high intelligence score is used.

When the correlation between average school mark and will-temperament score was computed for the 157 subjects,¹ it was found that $r = .136 \pm .05$. Though the correlation is positive, it is so low that it is practically negligible. The correlation between I.Q. and average school mark for the same subjects is much higher— $.545 \pm .04$. It appears that a *total* score on will-temperament means very little and that no accurate prediction of school success can be made on such a basis. It is necessary that one analyze the will-profile in order to discover the scores made by the subject on the various tests.

Does the bright child have an advantage over the dull child on the Downey test? Obviously, if this is to be a fair test of temperament and volitional traits, brightness should have very little effect on the results. The correlation for the 157 pupils in this study is: $r = .228 \pm .05$. It would seem that this correlation is as low as could be expected. It does not appear possible to find a test, regardless of its purpose, which does not give to the alert, bright, quick-thinking pupil a slight advantage over the dullard.

¹ All correlations were computed by the Holzinger method. Correlations are positive unless otherwise stated.

It was seen in Table III that the general level of the will-profile tends to become somewhat higher with advance in grade. This would lead one to anticipate a relation between age and will-temperament score. The correlation between will-temperament score and chronological age was worked out for these 157 students. It was found that $r = .304 \pm .05$. The correlation of chronological age with Otis test score for the same subjects is $.267 \pm .05$. This tends to indicate that maturity has a slightly greater influence on the will-temperament traits of these pupils than it has on their intelligence.¹

One of the most pertinent questions which can be raised concerns the relation between will-temperament score and intelligence-test score. A high positive correlation between the total score on an intelligence test and the total score on the Downey test suggests that the Downey test is much influenced by the intelligence level of the subject. Since the Downey test is devised to measure traits of temperament, such an implication would reflect seriously upon its validity. Consequently, high correlation between will-temperament score and intelligence score is very undesirable.

Correlations of will-temperament with intelligence obtained in other studies range from .19 to .77.² The total score on the Otis intelligence test was correlated with the total score on the will-temperament test for the subjects in this study; it was found that $r = .35 \pm .05$. When chronological age was held constant and the partial correlation for intelligence score and will-temperament score was computed, $r = .293 \pm .05$. It appears, therefore, that a positive, but low, relation exists between intelligence and will-temperament.

¹ The coefficient of correlation for the Otis test score and chronological age seems very low. However, it must be kept in mind that 112 of these subjects were high-school students and that many of them were no doubt mentally mature.

² June E. Downey, *op. cit.*, p. 249.

TEACHING ENGLISH WITH THE SOCIAL STUDIES

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A summary of the opinions of 8,799 teachers concerning the most urgent needs in improving the teaching of English was published last year in the *English Journal*.¹ First on the list, receiving 7,359 votes of a possible 8,799, was "specific working plans for the co-operative teaching of English in all subjects." A realization of a similar need has led to the development in the University High School of the University of Chicago of the co-operative plan described in this article.

It should be said at the outset that the word "English" as used in this discussion embraces two distinct matters: first, literature or reading; second, expression, both oral and written. The term "social studies" includes community life or community civics, history, and modern social problems.

In the University High School co-operation between the social studies and English is provided for in two distinct ways. In the first place, constant attention is given to correct and effective expression in all courses in social science; emphasis is placed on the correct use of the vernacular, so far as is practicable, in all other courses in the school. As a means to such instruction, each pupil is provided at the beginning of the year with a copy of a manual² containing rules and illustrations of good usage in capitalization, punctuation, spelling, penmanship, and sentence structure. This manual is perforated so that it may easily be placed in a notebook and is therefore at hand in the classroom whenever it is needed for reference. It is a valuable aid in teaching the mechanics of English in written exercises.

¹ J. W. Searson, "Determining a Language Program," *English Journal*, XIII (February, 1924), 105-6.

² *Standard Usage in English*. Prepared by the Department of English, University High School, University of Chicago. Chicago: University of Chicago Press, 1921. Pp. iv+26.

(In so far as suitable material can be found and time permits, biographies, memoirs, and historical novels are used for supplementary purposes in all courses in social science.) For example, in the course in the Survey of Civilization—an introductory course in world-history taken by ninth-grade pupils—a considerable number of books of this character are available, and the pupils are encouraged to do as much reading as possible. In connection with the study of such topics as primitive man, Egyptian life and civilization, Greek life and culture, Roman civilization, and medieval life, the pupils read imaginative works like Jensen's *The Long Journey*, Ebers' *Uarda*, Davis' *A Victor of Salamis*, Farrar's *Darkness and Dawn*, Henry's *Paul, Son of Kish*, Lytton's *The Last Days of Pompeii*, Doyle's *The White Company*, and Reade's *The Cloister and the Hearth*. Books dealing with a unit of study are assembled in book-cases in the classroom, and the course, instead of being limited to a few texts, becomes a means of rich reading experience.

[Opportunities for teaching English with history appear chiefly because of the suitability of the subject-matter for instruction in certain types of written work and because of the numerous occasions which arise for cultivating a straightforward and effective use of the mother-tongue. Early in the year the pupils are informed that only those papers which are written in correct and pleasing form will be accepted.) Papers deficient in neatness or unacceptable because of glaring ingrammaticisms, misspelled words, and similar violations of good form are returned with the instruction to correct, re-write, and return them. A few experiences of this sort usually prove salutary and ordinarily bring about the desired results.

(Especial attention is given in the social studies to the technique of note-taking, the making of summaries and digests, the preparation of analytical outlines, and the organization of subject-matter, all of which require the pupil to think.) In the more elementary courses instruction along these lines begins with the analysis of relatively simple material, the teacher frequently working with the class and illustrating on the blackboard what is to be done and the methods to be used in order to accomplish the desired result. Subsequently, the pupils are thrown more and more on their own responsibility while the teacher supervises their work in the classroom, offering

hints and suggestions or giving help to individuals when need arises. At the completion of the study of a unit, such as "The Industrial Revolution" or "The Westward Movement," the pupils are required to make an analytical outline of the subject in class, without the help of notes or books.

In addition to instruction in the types of written work mentioned, pupils are occasionally stimulated to undertake simple historical research problems and to summarize their findings in carefully written papers. They are also encouraged to write original stories or essays, using historical topics. Examples of subjects chosen for imaginative treatment are "Memories of an African Slave Trader," "Diary of a New England Factory Girl One Hundred Years Ago," "Petition for the Reform of Prisons," "Down the Mississippi on a Flatboat," "Letter from a Forty-niner to His Brother," and "An Abolitionist Editorial." Where the teacher has been successful in suggesting appropriate topics and in arousing the enthusiasm of the class, the papers which result are usually pleasing to him and gratifying to the individual pupils.

In the courses in history, correlation with English is confined in large part to instruction in oral and written expression. In the course in Community Life, however, the integration of English and social science is complete.

Community Life English is required of all pupils in the University High School. Ordinarily, the course is given in the eighth and ninth grades, a half-year in each of these grades being devoted to the subject. The teachers in charge of the work have usually been students of both English and social science, sometimes specializing in the former and sometimes in the latter but competent in both.

From the standpoint of English, the main aims in the course are two: first, to arouse or develop interest in reading as a means to vicarious experience; second, to stimulate and inculcate habits of clear, effective, and fluent expression.

The reading phase of the course is based on the belief that the proper approach for the creation or development of a liking for literature in boys and girls of junior high school age is through the content value of literature rather than through a study of those elements which may be regarded as primarily literary in character.

The latter may be postponed with advantage to the senior high school or even to the junior college. The interest of upper-grade pupils in literature can best be awakened or increased by directing their attention to the ways in which literature interprets human life and human affairs as manifested in the home, the school, the community, the out-of-doors, the world of work, and the world of play. Hence, the literature which is placed before the pupils in these grades is selected primarily for its interest to boys and girls and for its experiential value in bringing pupils into contact with life.

[To meet the varying needs and capacities of the pupils there is provided a large amount of diversified reading material from which they may choose.] As a result of freedom in the selection of reading-matter, one of the major aims of the teaching of literature to boys and girls in the junior high school—the development of a liking for good books—is realized.] Along with this freedom in the selection of reading material it is important to preserve unity and coherence in the course in order that group activities may proceed successfully and in order that the chief value of literature, the understanding of life in its manifold aspects, may be systematically advanced. Finally, it is regarded as essential that methods be devised for utilizing the reading experiences of pupils so as to stimulate rather than discourage the reading habit.

[On these beliefs or propositions the English phases of the course in Community Life have been built.] To give unity to the work and to provide an appreciative basis for the wide reading of the pupils, the activities in the course are grouped about a central core of subject-matter contained in a textbook. [This book furnishes both information and interpretation of such units of thought as the home, the school, the community, immigration, protection, work, and country. When the study of a unit begins, the pupils are given long lists of books which illumine or interpret the unit in question. Among the books listed are volumes of fiction, biography, poetry, travel, history, essay, and drama, each chosen because of its content value, its literary merit, and its appeal to boys and girls.]

[At the beginning of a new unit, the teacher usually talks to the class about the volumes on the book-list. The purpose of this talk is to arouse a desire in each pupil to read some book or books at

home or in the library during the time devoted in the classroom to the mastery of the text material, the making of outlines, the writing of themes, and the giving of floor-talks. As a means of keeping a record of the reading and of obtaining the reactions of the pupils, brief reports on 3×5 or 4×6 cards are called for from time to time. On these cards the pupils are asked to write in concise sentences the central theme of each book read, the ways in which it throws light on the subject of study, and their own reactions and judgments with regard to its contents and style. Occasionally, "Book Days" are held on which the pupils and teacher discuss informally what they have read; these days always prove both stimulating and enjoyable if they are not permitted to occur with too great frequency and if the discussion is not allowed to become repetitious and tiresome.

If the amount of reading which the pupils do, may serve as the criterion of the extent to which the first major objective in the course is realized, Community Life English has proved remarkably successful. Although the reading requirement is only a half-hour a day outside the classroom, it is exceptional to have pupils report on the reading of less than four thousand pages during a single semester of seventeen and one-half weeks. Studies which have been made of the voluntary reading of the pupils during vacation periods indicate that the lure of books thus created or stimulated abides long after the course in Community Life English has been completed.

(The wide reading of the pupils has proved of great value in the expression phase of the course. The enlargement of experience which comes from the perusal of many books, each contributing to the social-science concept around which the reading is centered, furnishes the pupils with a mass of information and new ideas which they are eager to express. In this way the first factor essential in successful composition work—something to express and a desire for expression—is provided. The variety in the floor-talks and the themes of the pupils, arising from the varied nature of the books they have read and the different individual experiences they have had, furnishes the second essential factor in the cultivation of sincere, fluent expression, namely, a genuine social situation in which each pupil is eager to hear what his neighbor has to contribute.

Moreover, the nature of the subject-matter is such that there is ample provision for the varying aptitudes and capacities of the pupils. As a consequence, the themes range from poems, plays, and short stories to essays, descriptions, and arguments. In fact, no feature of the course has proved more gratifying than the manner in which it has stimulated full, free, and fluent expression along lines which possess life-value.

Correlation between social science and English seems to have demonstrated its utility, then, by helping to make the use of good English habitual instead of spasmodic, as it is likely to become whenever emphasis on the correct use of the mother-tongue is restricted to English classes. In addition, it has promoted interest in reading and has thus served as a gateway to that world of human experience found in books. /

LEGAL PROVISIONS AND REGULATIONS OF STATE DEPARTMENTS OF EDUCATION AFFECTING JUNIOR HIGH SCHOOLS

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The purpose of this article is to summarize (1) the legal provisions of the various states of the American Union relating to the organization and maintenance of junior high schools, (2) the tendencies of the various state departments of education in the matter of standards, regulations, and recommendations affecting junior high schools, and (3) the probable influence of these laws, standards, regulations, and recommendations on the development of the junior high school movement.

The following publications were examined: (1) the school codes of the various states, including all references to high schools, particularly those provisions which apply to junior high schools, in some states called intermediate schools, (2) special documents published by state departments of education pertaining to junior high schools, and (3) recent reports of state boards of education, state superintendents of public instruction, or other chief executive officers of education.¹ So far as the recommendations of state departments of education are concerned, the study is limited principally to nineteen states. The department of education in each of these states has formulated a policy with regard to junior high schools and has published documents for the guidance of school officers. It is believed that a summary of the current practices of the various states will be of value in indicating the wholesome influences possible to the state departments of education in the further development of the new institution. The findings are also indicative of the extent and character of centralized control being developed in state departments of education.

¹ A complete list of the documents examined may be obtained in mimeographed form from the writer. Because of the specialized nature of these documents and their unavailability to the general reader, a bibliography is omitted.

THE LEGAL PROVISIONS

Character.—The legal provisions relating to the junior high school are, in the main, acts enabling existing school districts to establish this new type of school and guaranteeing to such schools, when established, powers and privileges of other schools. Because of the prevalence in the United States of the district system with local support and control, most school districts may organize their schools on whatever grade plan their constituents may desire. Likewise, there are few restrictions as to the content of the course of study. Instruction in religion is sometimes excluded, while instruction in physical training and hygiene or physiology is often mandatory. Limitations upon the powers of local boards of education have arisen from the wide acceptance of the 8-4 plan of school organization, in consequence of which laws have been designed to apply to a system of schools consisting of eight common-school grades and four years in the high school. For example, the laws of Indiana provide that the elementary school shall consist of eight years and that the high school shall consist of four years.¹ Most of the junior high school laws are adjustments permitting the extension of secondary education into the upper grades of the customary common schools and removing restrictions to permit elementary-school districts to include grades above the eighth.

The school codes of twenty-five states make some reference to junior high schools. A general view of the extent and character of the state laws pertaining to junior high schools may be gained from Table I. It appears that more than one-half of the states of the United States have legally recognized the junior high school movement. The recognition extended is permissive rather than mandatory and indicates that legal provisions lag behind rather than set the standards for reorganization. Definition of standards and details of the operation and maintenance of reorganized schools are delegated, in most cases, to the state department of education or to the chief executive officer of education. The potential influence thereby extended to these officials by virtue of the power of recognition may be a powerful factor in determining policies and practices in the reorganized schools.

¹ *Laws of Indiana Relating to the Public School System, 1923, sec. 158.*

TABLE I

SUMMARY OF THE TYPES OF LEGISLATION OCCURRING IN THE SCHOOL CODES
OF THE VARIOUS STATES AND RELATING TO JUNIOR HIGH SCHOOLS

Type of Legislation	Number of States	States
Laws definitely relating to junior high schools and permitting their organization.....	25	Alabama, California, Connecticut, Florida, Georgia, Indiana, Kansas, Maine, Maryland, Massachusetts, Michigan, Minnesota, New Hampshire, New Jersey, New York, North Carolina, North Dakota, Ohio, Pennsylvania, Texas, Vermont, Virginia, Washington, West Virginia, Wisconsin
Laws providing for recognition or approval by the state department of education or the chief executive officer of education.....	20	Alabama, California, Connecticut, Florida, Indiana, Kansas, Maine, Maryland, Massachusetts, Minnesota, New Hampshire, New Jersey, North Dakota, Ohio, Pennsylvania, Vermont, Virginia, Washington, West Virginia, Wisconsin
Laws recognizing the division between elementary education and secondary education at the beginning of the seventh grade.....	19	Alabama, California, Connecticut, Indiana, Kansas, Maine, Michigan, Minnesota, New Jersey, North Carolina, North Dakota, Ohio, Pennsylvania, Texas, Vermont, Virginia, Washington, West Virginia, Wisconsin
Laws defining the grades to be included.....	14	Alabama, California, Florida, Indiana, Minnesota, New Jersey, North Carolina, Ohio, Pennsylvania, Texas, Vermont, Virginia, West Virginia, Wisconsin
Laws recognizing the junior high school as an integral part of the school system and defining the junior high school.....	13	Alabama, California, Florida, Indiana, Maine, Minnesota, New Jersey, Ohio, Pennsylvania, Vermont, Virginia, West Virginia, Wisconsin
Laws making special provisions regarding state aid for junior high schools.....	8	Maine, Maryland, Massachusetts, Minnesota, New Jersey, North Dakota, Vermont, West Virginia
Laws providing for payment of tuition of non-resident seventh- and eighth-grade pupils.....	8	California, Connecticut, Maine, Michigan, Minnesota, New Hampshire, North Dakota, Ohio
Laws making special provisions regarding the certification of junior high school teachers...	6	California, Florida, Indiana, Kansas, Virginia, West Virginia
Laws prescribing a minimum enrollment for recognition or approval.....	3	California, Florida, Wisconsin
Laws prescribing subjects that must be included in the curriculum.....	2	Vermont, Virginia

The absence of laws regarding the junior high school in almost one-half of the states must not be interpreted to mean that junior high schools cannot be organized in these states. In so far as the schools are locally supported and controlled, the absence of state laws relating to a particular type of school is as permissive of its development as is the presence of such a law. The existence of junior high school laws in more than one-half of the states is rather to be interpreted as an extension of centralized state control over junior high schools.

Provisions as to districts authorized to maintain junior high schools.

—No state law provides for the organization of a separate junior high school district. Junior high schools are mandatory in Alabama in all districts maintaining Grades VII to IX. Maintenance by specified districts is optional as follows:

California.—In city or district high school districts, by resolution; in union high school districts, by resolution of the trustees upon petition of a majority of the trustees in a majority of the elementary-school districts comprising the high-school district; or by election.

Indiana.—By commissioned high-school boards.

Kansas.—By rural high-school boards of education.

Maine.—By town, precinct, or union. Cost of maintenance may be taken from the high-school funds or from the high-school funds and common-school funds in proportion to the cost of the maintenance of the several grades.

Minnesota.—By a school district that maintains a six-year elementary school.

New Hampshire.—By the elementary school.

Washington.—By union districts.

West Virginia.—By county-school districts or independent school districts.

Wisconsin.—By districts maintaining a free high school, a union free high school, or a graded school.

No state laws prohibit the organization of junior high schools by districts maintaining the grades to be included. There is apparently a tendency on the part of states maintaining union or special high school districts to permit and encourage the organization of junior high schools by such districts. With regard to support, there are yet distinctions between the seventh and eighth grades on the one hand and the ninth grade on the other. The laws of California provide that the elementary-school board shall pay a tuition charge to the high-school board maintaining a junior high school for the pupils of

the seventh and eighth grades. By an easy expediency this distinction as to pupils may be avoided, since in accordance with the law, by agreement between the board of trustees of the elementary school and the high-school board, the charge may be fixed at nothing and the whole expense borne by the high-school district. High-school boards may levy an amount sufficient for maintaining both the high school and the junior high school. By the laws of Maine the cost of maintenance may be similarly proportioned. The cost of maintenance of the ninth grade is in all cases borne by the high-school district.

Approval or recognition.—Approval or recognition by the state department of education gives the junior high school definite legal standing in twenty states. Such approval or recognition carries with it the privilege of participating in state aid in Maine, Maryland, Massachusetts, Minnesota, New Jersey, North Dakota, Vermont, and West Virginia. It enables the junior high school to receive tuition for non-resident seventh- and eighth-grade pupils in California, Connecticut, Maine, Michigan, Minnesota, New Hampshire, North Dakota, and Ohio. Standards for approval or recognition in addition to those contained in the laws may be formulated by the approving agency in each of the states providing for approval. Thus in no instance is approval mandatory.

Certification of junior high school teachers.—The school laws of six states prescribe the type of certificates that shall be valid for teaching in the junior high school. There is but little indication of a tendency to raise requirements for certificates above those for certificates for elementary-school teaching. The laws of California provide for a high-school certificate. However, elementary certificates are recognized for teaching in the seventh and eighth grades. A junior high school or a high-school certificate is required to teach ninth-grade subjects. The laws of Florida require the teacher to hold a life-certificate or a certificate of the first grade. The laws of Indiana require the teacher to be certificated in the subjects taught and also in the science of education. The laws of Virginia require the same certificates in junior high schools as in senior high schools. The laws of West Virginia recognize first-grade certificates or high-school certificates as valid for teaching in the junior high school.

Enrolment.—The laws of three states make definite provisions regarding the minimum enrolment in schools that may be recognized as junior high schools. The laws of California provide that the junior high school organization shall lapse if the average attendance is below twenty-five for any school year. The laws of Florida provide that the average daily attendance shall be not less than fifty. No junior high school can be organized under the Wisconsin law if the enrolment in the district in Grades VII and VIII during the preceding year was less than forty.

Course of study.—The laws of two states make definite provisions as to the course of study. The laws of Vermont provide that the course shall be flexible, that it shall be four years in length, that it shall be designed for pupils who have completed the sixth grade, and that it shall furnish vocational opportunities. The laws of Virginia provide that the course shall include English, social science, manual arts, mathematics, music appreciation and chorus singing, and physical education.

SUMMARY AND CONCLUSIONS

1. A considerable amount of legislation with regard to junior high schools has appeared in the various states. This legislation tends to break away from the 8-4 plan of school organization and to facilitate the extension of secondary education into the upper grades of the common school.

2. The state departments of education and the chief executive officers of education in the various states are in a position, by virtue of the power of recognition or approval, to influence notably the development of the junior high school.

3. There is little, if any, tendency to make the organization of junior high schools mandatory upon local districts.

4. There is a tendency to recognize the division between elementary education and secondary education at the beginning of the seventh grade.

5. In general, the privileges extended to other types of schools are extended to junior high schools.

6. There is little indication of a tendency to raise the requirements for certification of junior high school teachers above the requirements for certification of elementary-school teachers.

7. There is a tendency to permit the organization of junior high schools by existing high-school districts.

8. The tendency to recognize the traditional distinction between elementary education and secondary education at the end of the eighth grade persists in some of the school laws.

9. There is a tendency to centralize the control of junior high schools through the power of recognition by state departments of education.

10. There are few provisions of state laws that influence the size of school that may be organized as a junior high school.

11. School laws make few provisions directly regarding the content of the courses of study in the junior high schools.

THE REQUIREMENTS AND RECOMMENDATIONS OF STATE DEPARTMENTS OF EDUCATION

Standards for the recognition or approval of reorganized schools designed for the guidance of school officials are found in the published documents of at least nineteen states: Alabama, California, Connecticut, Florida, Georgia, Indiana, Iowa, Kansas, Massachusetts, Minnesota, North Dakota, Ohio, Oregon, Pennsylvania, Vermont, Virginia, Washington, West Virginia, and Wisconsin. These standards vary in character from a brief statement of minimum essentials to extended and detailed recommendations. Junior high school manuals have been published by the state departments of education of Alabama, Indiana, Kansas, Massachusetts, Minnesota, Ohio, Oregon, and Washington. Extensive recommendations in mimeographed form have been issued by the State Department of Public Instruction of Pennsylvania. In so far as these standards are adhered to as prerequisites for recognition or approval, they have the force of law. Recommendations in excess of minimum essentials may be interpreted as representative of the best practices in junior high school organization. It is not unlikely that the recommendations are based on practices in the better junior high schools of the various states. There follows a summary of the requirements and regulations of state departments of education as related to some important features of junior high school organization occurring in published statements of nineteen state departments of education.

Requirements for admission.—In general, the requirement for admission to the junior high school is completion of the sixth grade. The state of Florida is an exception; in this state the junior high school begins with the ninth grade. Other states permit pupils who have not completed the sixth grade to enter under certain conditions. These states and the conditions are as follows: Georgia, overage pupils of the sixth grade; Massachusetts, pupils who are thirteen years of age and have an intelligence quotient of 80 or higher; Ohio, not narrowly restricted to those who have completed the previous six years of work; Oregon, retarded pupils who are misfits in the lower grades and who may profit by the work of the junior high school; Washington, any pupils over the age of twelve who are apparently failing to adapt themselves to the work of the lower grades.

Years included in the junior high school.—There is considerable variation in the recommendations as to the school years to be included in the junior high school, with a marked tendency to include Grades VII, VIII, and IX. The tenth grade may be included in California, Georgia, Indiana, and Wisconsin. The tenth grade is included by law in Florida and Vermont. With the exception of these two states, the recommendations indicate that the three-year plan, including Grades VII, VIII, and IX, is the favored one. Variations from this plan, if recognized by state departments of education, must be temporary or, as in Pennsylvania, "clear evidence must be presented to the department of the necessity of including the tenth grade."

Departmentalization.—Departmentalization is clearly implied or specifically required by the recommendations of all of the state departments of education. Specific recommendations are made as to the extent and character of departmentalization. There is a consensus that it should be gradual in Grades VII and VIII and complete in the ninth grade. Measures recommended to offset the dangers of extensive departmentalization are: the influence of the home-room teacher, supervised study, a program of educational and vocational guidance, and participation by the whole school in general exercises and extra-class activities. The State Department of Public Instruction of Washington recommends that seventh- and eighth-grade

pupils recite two or more of their academic subjects with the home-room teacher.

Promotion.—Promotion by subjects, with a considerable amount of flexibility, is accepted by all of the state departments of education as an essential characteristic of the junior high school. The considerations upon which promotions are to be based are: economy of time, the age of the pupil, mental ability, and the futility of repetition of any subject in a grade by a pupil who has obtained from the subject the maximum that he is capable of assimilating in that grade. It is commonly implied that promotion should be at the end of a semester, but it may take place at any time if, in the judgment of the principal, the pupil would profit by promotion. The State Department of Education of Massachusetts recommends that the pupil be promoted to the senior high school on the recommendation of the principal of the junior high school.

It is apparently the attitude of the state departments of education that pupils should make at least normal progress through the years of the course and that failures should be few. The following devices which should accomplish this purpose are frequently mentioned: election of subjects according to the interests of the pupil, better teachers, better equipment, supervised study, smaller classes, ability grouping, educational guidance, longer school day, special coaching for pupils who fall behind, accelerated promotions for the mentally gifted, special training in methods of study, improved methods of instruction, and better adaptation of the school organization and curriculum to the needs of adolescence.

Teachers' qualifications.—The recommendations of the state departments of education with regard to qualifications of teachers commonly exceed the requirements of the state laws. There is a tendency to recognize special fitness for dealing with adolescents, special preparation in the subjects taught, personality, experience, professional preparation in junior high school methods, and other professional preparation. In Alabama at least one teacher in the school must be a man qualified to teach courses adapted to boys, and at least one teacher must be a woman qualified to teach courses adapted to girls. The Minnesota standards provide that one-third of the teachers must have the same preparation as that required of teachers in four-year

TABLE II
FREQUENCY OF SUBJECTS OF STUDY BY GRADES IN THE RECOMMENDED
JUNIOR HIGH SCHOOL PROGRAMS OF STUDY OF ELEVEN STATES*

SUBJECTS OF STUDY	SEVENTH GRADE		EIGHTH GRADE		NINTH GRADE	
	Re- quired	Elective	Re- quired	Elective	Re- quired	Elective
Agriculture.....	1	3	1	4	1	2
Art†.....	4	3	4	7	1	8
Design.....				2		2
Biology.....				1	1	3
Botany.....						1
Chemistry.....						2
Commercial subjects.....		2		5		4
Bookkeeping.....						3
Business practice.....				1		
Commercial arithmetic.....						1
Typewriting.....		1		1		2
Electives (free).....		1	1	1	1	1
English‡.....	11		11		11	
Business English.....				1		
Literature.....		1		1		
Special English.....		1		1		
Foreign language.....		5		7		7
French.....		2		2		2
Latin.....		3		3		4
Spanish.....		2		1		1
General sciences§.....	4	1	8	2	2	1
Geography.....	4		1			
Commercial geography.....				1		
Guidance.....	1		1	1	1	
Health.....	4		3			
Physiology.....						1
Home economics||.....	4	5	3	7	1	6
Industrial arts¶.....	3	5	2	6		6
Shop.....	1		1			1
Manual training.....		2		2		3
Mathematics.....	9		10	1	4	5
Algebra.....						1
Arithmetic.....	2		1			1
Music.....	7	2	6	4	2	8
Physical training.....	9		9		9	
Physics.....						1
Physiography.....						2
School activities.....	1		1		1	
Social science.....	7		7		7	
Civics**.....	1		1			1
History.....	3		1			1
European.....						2
Modern.....						1
Thrift.....		1		1		
Vocations††.....	1	2		2	1	3

* The states are as follows: Alabama, California, Georgia, Indiana, Kansas, Massachusetts, North Dakota, Ohio, Oregon, Pennsylvania, and West Virginia.

† Includes subjects listed as drawing, freehand drawing, and fine arts.

‡ Includes reading, spelling, literature, language, grammar, and composition. The composite course is common to all of the recommended programs of study tabulated.

§ Includes subjects listed as elementary science and science.

|| Includes subjects listed as domestic science and household arts.

¶ Includes subjects listed as industrial arts and practical arts.

** Includes community civics.

†† Includes courses listed as occupations.

high schools, and the Wisconsin standards provide that all teachers must have such preparation. California recommends a special license in the subjects taught; Indiana requires it. Oregon requires at least fifteen semester hours of professional preparation in education.

The program of studies.—The influence of centralized authority is probably greater with respect to the curriculum than with respect to any other aspect of the situation. In no state is the curriculum prescribed by the state department of education; nevertheless, it is clear that recommendations, coupled with the power of discretionary approval, have the practical effect of requirements in the case of the individual school. Recommended or suggested programs of studies appear in the school documents issued by eleven state departments of education. Table II is a compilation of the eleven recommended curriculums and shows the frequency with which subjects of study appear by grades as required or elective.

1. English is the only subject required in all of the curriculums. This is in all cases a composite subject. The failure of state departments of education to recommend the formal subjects, such as grammar, reading, composition, and spelling, is indicative of a radical departure from traditional seventh- and eighth-grade curriculums. Specialized courses in English occur only as electives and are relatively infrequent.

2. Some form of mathematics is required in both the seventh grade and the eighth grade in all the curriculums and is required or elective in the ninth grade. Arithmetic and algebra of the traditional curriculums are almost completely displaced, at least in name, by general mathematics.

3. Physical training is prominent as a required subject. It is never elective. If the subjects listed as "Health" are combined with the subjects listed as "Physical training," it appears that the health objective is well recognized in the recommended curriculums.

4. Social science is well represented as a required subject with a marked tendency toward general social science. Specialized history does not occur in the recommendations for Grades VII and VIII.

5. Foreign languages and Latin are well represented as electives but are not required.

6. Commercial subjects occur only as electives and less frequently in the seventh and eighth grades than in the ninth grade.

7. Science is well represented. This tends to be general science, which in turn tends to be a required subject in the eighth grade.

8. Home economics (girls) and industrial arts or manual training (boys) are more often elective than required.

CONCLUSION

In view of the foregoing considerations, it is too obvious to require mention that the junior high school has come to be a recognized unit of secondary education. The advent of this new unit has occasioned a considerable amount of reorganization and an extension of centralized control. In view of recognized divergences in practice, there is need for educational leadership. The legal provisions in those states in which junior high school legislation has appeared tend decidedly to place that leadership in the hands of the state department of education. By virtue of the authority thus vested in them by law, state departments of education are in a position to develop a type of leadership which for the traditional upper grammar grades is non-existent and for which the customary ninth grade, together with the high school, has looked to the colleges. There is reason to expect this leadership from state departments of education rather than from local districts or from college-entrance boards. The junior high school, even more distinctly than the senior high school, is a school for all of the people. Although any unit of a continuous school system may rightfully be expected to function as preparatory for the continuance of educational pursuits, the junior high school, by virtue of its position between the elementary grades and the senior high school, has a more distinct function in the preparation of all of its pupils for citizenship. This function is the concern of state departments of education. Our findings indicate that state departments of education have made an entry into this field which may be expected to result in crystallizing and stabilizing the better features of the junior high school movement.

A STUDY OF INTELLIGENCE AND OF THE TRAINING OF TEACHERS AS FACTORS CONDITIONING THE ACHIEVEMENT OF PUPILS. II

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THE TRAINING OF THE TEACHER AS IT CONDITIONS THE ACHIEVEMENT OF THE PUPIL

The training of the teacher as a variable factor.—Numerous standards of preparation have been set up from time to time by teacher-training institutions, superintendents of schools, and boards of education, on the basis of which relative competency of teachers might be judged. These standards have often been broad, stating, for example, that the teacher must be a high-school graduate with an A.B. degree from a standard college in order to qualify for certification. Sometimes the training institution has required the prospective teacher to pursue a definite curriculum, leading to certification in some particular subject. The school in which the teacher is to be employed may have still more definite requirements of training for the teacher to meet. *These standards have all been based on the theory that, in the main, more training will insure better teaching.*

It should be possible to measure, in terms of the achievement of the pupils, the effect the training of the teacher may have on the product of his work. On the basis of such quantitative standards, we may then be able to determine the proper amount of training needed to meet minimum standards of accomplishment. It is evident that many factors aside from training enter into the determination of the final product. It has already been shown that some of the factors conditioning the achievement of pupils change as the size of the school changes.

By taking the schools with enrolments of 550 or more and comparing them as to various factors, we find them to be homogeneous in most respects. In one respect, however, they are found to differ widely. This one variable factor is that of the training of the teach-

ers. The schools may be classified, therefore, into groups on the basis of the training the teachers have received.

The homogeneity of the schools.—It has been previously shown that the intelligence of the pupils increases as the size of the school increases until the school reaches an enrolment of approximately 550. The mean ability of the pupils in the sixteen schools represented in the three classes of larger schools shown in Figure 2 is seen to remain constant at about an I.Q. of 109 on the Otis tests. Schools, then, of 550 pupils or more would be fairly homogeneous as to the average intelligence of the pupils represented by them.

It may be assumed that the teaching facilities in these schools are fairly good. The content of the physics course and the time allotted to the different divisions of the subject differ but little. Whatever variations exist in these factors would likely be compensatory as they affect the achievement of the pupil within the course.

The variable factor is the teacher. Teachers in different schools differ as to training and as to experience. Both training and experience supposedly affect efficiency of instruction. The teachers in the schools considered in this portion of the study are teachers of long experience, and but little difference exists in the average experience of the teachers when considered in different groups. Fortunately, this factor can be controlled, leaving us free to classify the schools into groups determined by the amount of training the teachers of these schools have received. By comparing the achievement of the pupils in the different groups of schools, we may get some indication of the comparative efficiency of teachers with varying amounts of training.

Classification of groups.—The schools were classified into four groups. Group I includes all of the schools in which the teachers have received no training in college physics. Group II includes all of the schools in which the teachers have received one year of training in college physics. Group III includes all schools in which the teachers have received two years of training in college physics. Group IV includes all schools in which the teachers have received three or more years of training in college physics. The teachers in this last group have completed at least a college major in physics.

The nature of the training included.—The schools have been

grouped on the basis of the number of years of college physics because it represents that part of the teacher's training most closely related to the material he is teaching. Probably his training in education would also function very strongly in his work. Consequently, we shall consider the training of the teacher as being represented by the number of years of training he has had in college physics and the number of years of training in education. A year of training was defined in the questionnaire through which the data were procured as a course pursued four or five periods a week for one year. Education was defined so as not to include courses in general psychology.

The qualifications of the teachers and the achievement of the pupils.
—A comparison of the qualifications of the teachers of the different

TABLE II
RELATIVE QUALIFICATIONS OF THE TEACHERS OF DIFFERENT GROUPS AS MEASURED BY TRAINING IN COLLEGE PHYSICS AND EDUCATION AND BY EXPERIENCE IN THE TEACHING OF PHYSICS

Group	Average Number of Years of College Physics	Average Number of Years of Education	Average Number of Years of Experience in the Teaching of Physics
I.....	0.0	1.5	11.0
II.....	1.0	2.1	10.3
III.....	2.0	1.3	10.0
IV.....	3.7	2.5	9.2

groups may be seen in Table II. A comparison of the achievement of the pupils in the different divisions of physics may be seen in Figures 9, 10, and 11.

Those pupils who were taught by teachers who had majored in physics in college have a very significant advantage over those who were taught by teachers who had not majored in this subject. On the test of thirty questions in mechanics and heat this advantage was 2.9 points; on the test of thirty-five questions in magnetism and electricity, 4.2 points; and on the test of thirty-six questions in sound and light, 4.6 points.

In every test, the pupils who were taught by teachers who had majored in physics made average scores above the mean score of all

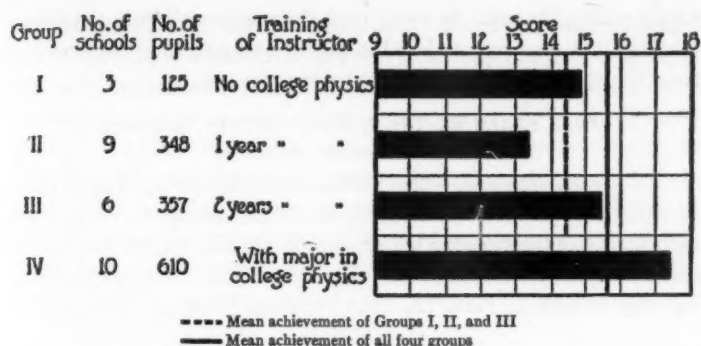


FIG. 9.—Comparison of mean achievements on tests in mechanics and heat of pupils taught by teachers with varying amounts of training.

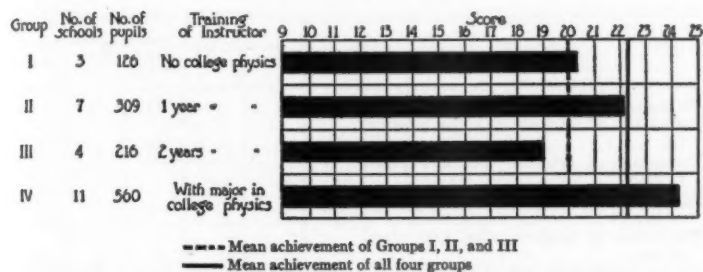


FIG. 10.—Comparison of mean achievements on tests in magnetism and electricity of pupils taught by teachers with varying amounts of training.

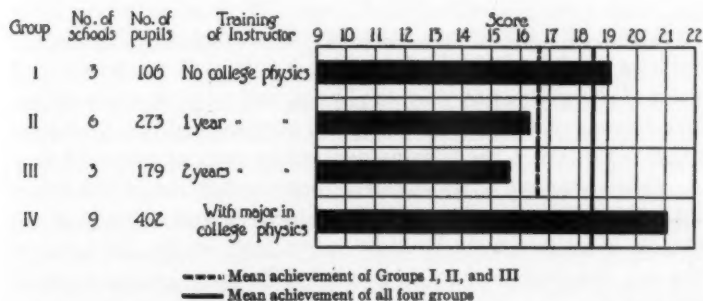


FIG. 11.—Comparison of mean achievements on tests in sound and light of pupils taught by teachers with varying amounts of training.

pupils taking the test. In every test, the pupils who were taught by teachers who had not majored in physics made average scores less than the mean score of all pupils taking the test.

WHAT SHALL BE THE NATURE OF THE TRAINING
OF TEACHERS OF PHYSICS?

The present training.—What is the nature of the training of those now teaching physics? The questionnaire previously mentioned was used to obtain information with regard to the training of the physics teachers in one hundred schools. The nature and extent of this training may be seen in Table III. The "average" teacher of physics, as

TABLE III
NUMBER OF YEARS OF TRAINING IN VARIOUS COLLEGE SUBJECTS
RECEIVED BY 100 TEACHERS OF PHYSICS*

	Physics	Chemistry	Mathematics	Practice-teaching	Special Methods	Education
Percentage of teachers with no training..	6	11	6	84	71	16
Percentage of teachers with one year or less	41	46	32	99	99	44
Percentage of teachers with two years or less	73	69	73	.....	.....	74
Percentage of teachers with three years or less	94	82	92	.....	.....	91
Percentage of teachers with four years or less	97	95	99	.....	.....	99
Median number of years of training	1.67	2.0	2.4	.....	.....	1.5

* The percentage and the number represented would be numerically the same since the data are from 100 teachers.

represented by this group, has received training in college for his work as teacher of physics by taking 2.4 years of mathematics, 2 years of chemistry, 1.67 years of physics, and 1.5 years of education. The absence of such courses as special methods and practice-teaching is noticeable in the training received by most of the teachers.

Future interests of the teachers.—Some indication of the future interests of these teachers may be gained through a study of the choices of majors made by them in graduate study. Sixty-two of the one hundred teachers had enrolled in some graduate school. Their choices of major interest in graduate study are shown in Table IV. Thirteen per cent of these teachers of physics will further spe-

cialize in physics in their graduate work. The eight teachers represented here had majored in physics in college. Eighty-seven per cent will specialize in other subjects in their graduate work. Only one teacher of physics out of every eight, therefore, is likely to choose physics as a graduate major. The reason would not be difficult to determine. If college physics is pursued as graduate work, it offers but little to help the teacher in the high school. Its function is to produce physicists, not teachers. On the other hand, there is nothing offered in graduate schools of education to encourage graduate study in the field of physics-teaching. The absence of special training

TABLE IV
DISTRIBUTION OF SIXTY-TWO TEACHERS OF PHYSICS
ON THE BASIS OF THE SUBJECT CHOSEN
AS A GRADUATE MAJOR

	Number	Per Cent
Subjects unrelated to physics...	22	35.5
Education	17	27.4
Chemistry	14	22.6
Physics	8	12.9
Mathematics	1	1.6
Total	62	100.0

courses in the preparation of the teachers of physics was not due to any choice of their own. The field of training is simply limited.

Why the pupils with teachers who have majored in physics are superior in achievement.—The high-school teacher of physics, then, can scarcely be expected to possess a knowledge of the methods scientifically designed to meet the special problems and needs of his subject. His attitude toward teaching is likely to be a reflection of the attitude of his college teachers. The college teacher has been inclined to place emphasis on the content side and to minimize the importance of scientific methods of instruction. The college courses are designed to reflect this attitude. Consequently, those students in college who major in the subject of physics are those who have a deep interest in the subject and are, at the same time, endowed with the proper degree of ability to master the content. These same teachers evidently carry their interest in the subject into their teaching. Possessing the

interest, the ability, and a knowledge of the subject, they pursue courses in education in order to meet the requirements of certification and to improve their methods of teaching. It will be remembered that the teachers who averaged 3.7 years of training in college physics also averaged more than two years of training in education. There were twenty-three teachers represented in the questionnaire study who taught physics alone. Of this number, thirteen had majored in the subject. Combinations of the subjects taught by the

TABLE V
FREQUENCY WITH WHICH SUBJECTS WERE TAUGHT BY 100
TEACHERS IN COMBINATION WITH PHYSICS

Subject	Frequency
Chemistry.....	31
General science.....	29
Physics taught alone.....	23
Mathematics.....	20
Biology.....	9
Botany.....	6
Physical geography.....	5
Agriculture.....	5
History.....	4
Arithmetic.....	3
Civics.....	2
Physical education.....	2
Manual training.....	2
Zoölogy.....	1
Grammar.....	1
Economics.....	1
Physiology.....	1
Bookkeeping.....	1
Latin.....	1

teachers represented in this study are given in Table V. This table shows, in a way, that these teachers were teaching subjects closely related to physics as it is commonly conceived.

It is conceivable that the three teachers from the schools of Group I who had had no training in college physics were teachers who had been selected to teach because of personal qualifications and skill as teachers. One of these had been a manual-training teacher; another had majored in chemistry; and the third stated

that he was not a teacher of physics but was teaching the subject by request. He had majored in biology in college.

Those teachers who had taken one year of physics in college had, of course, majored in subjects other than physics. All except three were teaching physics in combination with other subjects. Their college majors were usually represented in this combination. Two of these three teachers who were teaching physics with no other subject were graduate students majoring in educational administration. The third teacher had a college major in education with one year of training in each of the following subjects: mathematics, physics, and chemistry. Of fourteen teachers who had taken two years of college physics and whose pupils took the tests in mechanics and heat, six had majored in mathematics, and eight had majored in chemistry.

Apparently those teachers who are teaching physics in the high school without having had any preparation in the subject in college are doing so on the strength of general teaching ability. Those who are teaching physics in the high school after having had one year of preparation in college physics are teaching it in combination with the subject of their major interest. The subject of major interest is related to physics in such a way as to suggest that in many cases physics in college was carried as a requirement in connection with the major subject or else was chosen to meet a science requirement. Those who are teaching physics in the high school after having had two years of college physics seemingly represent those who took physics as a minor to mathematics or chemistry and are teaching it in combination with one or the other or both of these subjects. Those teachers who are teaching physics in the high school after having majored in the subject in college represent those who have specialized in it. They have a knowledge of the content, are trained in methods, and have a special interest in the subject. These are reflected to a marked degree in the achievement of their pupils.

Three years of training too long.—Three years of college physics, added to one year of high-school physics, is too long a period of training to ask of every high-school teacher of the subject.

Many schools have but one class in the subject. Because of the lack of homogeneity of the small schools in the different factors

affecting achievement, they have not been included in this portion of the study. Certainly the pupils in the small schools deserve teachers who can teach the subject effectively. If training conditions the achievement of the pupils taking physics as it seems to do, we can scarcely expect very satisfactory achievement from the teachers in the smaller schools when the training, as indicated in Hutson's study,¹ is likely to be, on the average, less than ten hours of college physics.

The training desired.—There apparently is a need in the period of the training of teachers of physics who teach in our high schools for a course in college physics which will emphasize the type of content most needed by high-school pupils. This does not mean that the content should not be deeper and wider than that needed by the high-school pupil, but it does mean that the prospective teacher, in as short a time as possible, should be sent out to teach with a rich fund of knowledge and experience applicable to the high-school physics course. The first-year course in pure physics in college apparently does not function sufficiently in a course in practical high-school physics. A course is needed which is designed to equip teachers with a type of content that will function to a greater degree. This course in content may well be supplemented with properly designed courses in special methods and practice-teaching, the completion of all of which will take considerably less time than is now required of teachers in reaching the skill necessary in order to teach effectively.

SUMMARY

1. The data presented in this study show that the degree of mental selection among pupils taking physics in the high school increases as the schools increase in size. This tendency persists until the schools reach an enrolment of 550 pupils. After this enrolment is reached, the median intelligence quotient of the pupils enrolled remains relatively constant.

2. The average intelligence quotient of the pupils in schools with enrolments of 550 pupils or less is about five points below the aver-

¹ Percival W. Hutson, *Training of the High School Teachers of Minnesota*. Educational Monograph No. 3. Bulletin of the University of Minnesota, Vol. XXVI, No. 46. Minneapolis, Minnesota: University of Minnesota.

age intelligence quotient of the pupils in schools with enrolments of more than 550 pupils.

3. The achievement of the pupils in the smaller schools as measured by the results of the tests in mechanics and heat compares favorably with the achievement of the pupils in the larger schools. When compared with the pupils in schools with enrolments of more than 1,150, the pupils in the smaller schools are distinctly superior. This comparison holds for a semester's work, since mechanics and heat comprise one-half of the year course.

4. The achievement of the pupils in the smaller schools as measured by the results of the tests in magnetism and electricity does not compare favorably with the achievement of the pupils in the larger schools.

5. The results show little relation between the size of the school and achievement in sound and light.

6. When the achievement of the pupils in thirteen schools with enrolments of less than 550 pupils was compared with the achievement of the pupils in sixteen schools with enrolments of 550 or more pupils, the following results were obtained. The pupils included are those for whom data on intelligence were available.

a) The 165 boys of Group I (small schools) were superior in achievement in mechanics and heat to the 502 boys in Group II (large schools) by .4 point. The 117 girls in Group I were superior in achievement to the 124 girls in Group II by approximately the same amount. Owing to the difference in the ratio of boys to girls in the two groups, the average achievement of the pupils in the two groups was approximately the same.

b) In magnetism and electricity, the boys in Group II were superior in achievement to the boys in Group I by 2.2 points. The girls in Group II were superior in achievement to the girls in Group I by 1.6 points. The pupils in Group II were superior in average achievement to the pupils in Group I by 2.8 points.

c) In sound and light, the boys in Group I were superior in achievement to the boys in Group II by .4 point. The girls in Group II were superior in achievement to the girls in Group I by 4.7 points.

7. When the achievement of pupils in schools fairly homogene-

ous in size, intelligence of the pupils, equipment, experience of the teachers, content, and time allotment to different divisions, but not homogeneous with respect to the training of the teachers in college physics, was compared on the basis of the last-named factor, the following results were obtained.

The pupils who were taught by teachers who had majored in college physics excelled in average achievement the pupils who were taught by teachers who had not majored in college physics. This superiority was evident on every test. It was 2.9 points in mechanics and heat, 4.2 points in magnetism and electricity, and 4.6 points in sound and light.

The results may argue for the employment, whenever possible, of teachers of physics who have majored in the subject, other qualifications, of course, being equal. Three years of training in the content of the subject added to the one year already received in the high school is a standard that cannot be reached by many schools. Considered from an economic standpoint, this seems too long a time to spend in providing a teacher with the amount of content necessary to teach an elementary course in practical high-school physics. In the opinion of the writer, college courses designed specifically for the training of teachers for the teaching of physics in the secondary school are very much needed. These courses should give the foundation and mental background required by the high-school teacher of physics to teach the more or less elementary "practical" content appropriate to the needs and abilities of high-school pupils. These content courses should be supplemented with courses dealing specifically with methods of teaching physics to high-school pupils and giving opportunity for the teacher-in-training to do actual practice-teaching. This period of training could be considerably shorter than the four years which the foregoing results seem to indicate to be essential at present.

THE STORY OF THE FASCES AT CENTRAL HIGH SCHOOL

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The whole thing started last year. In one of Cicero's orations we came upon the statement that "twelve axes had fallen into the power of the pirates." There naturally followed an investigation into the subject of fasces and their significance in Roman political life.

Then one pupil called the attention of the class to the fasces on the reverse side of the new dime. All of the dimes the pupils had were examined, and we realized what a beautiful and interesting design it was. Sam, who is inclined to investigate, asked why the United States coin should have the ancient Roman fasces on it. Various explanations were suggested until Lily, who is exceedingly practical, volunteered to write to the United States Treasury Department. The officials there were unable to give us the information we wanted but suggested that the designer of the coin, A. A. Weinman, might be able to help us.

Someone then suggested that we consult *Who's Who in America* to find out Mr. Weinman's address. We discovered that Mr. Weinman is an eminent artist living in New York City, and we wrote a letter to him, writing it first on the blackboard. The teachers of the English department would have enjoyed the writing of that letter. The technique of letter-writing was never before so thoroughly exposed. Then Lily and Sam were chosen by the class to copy the letter from the board and send it to Mr. Weinman.

Mr. Weinman wrote a charming letter in reply, in his own handwriting, explaining that he had chosen the fasces for the ten-cent piece because he had had in mind the story of the father who gave each of his sons in turn a bundle of sticks and bade them break them. None was able to do this until he unbound the bundle and showed them how easily they could be broken when separated. The fact, then, that "in union there is strength" is clearly symbolized by the

Roman fasces. In addition, the battle ax represents preparedness for war, and the olive branch about the fasces represents the blessedness and beauty of peace.

How the class did enjoy that letter! The motion was made that we frame it and hang it on the wall of the classroom. It hangs there now in a place of honor, and not a week passes that someone does not read it and comment upon it.

Then the Olympian Club, which is composed of the eleventh- and twelfth-grade Latin students, having acquired a romantic and thrilling interest in the beauty and significance of the fasces, decided to adopt it for its symbol. A committee was appointed to get all of the information possible about the fasces—to find out of what it was made and to get together the material for making a "life-sized" one to suspend from the wall of the Latin room. As Hyman suggested, if we had a bundle of rods right in the classroom, it might be an incentive to the indolent pupils to work a little harder, since they would then realize what fate might be in store for them if they shirked.

Through the kindly help of Lillian's father, who owned a hardware store, the battle ax appeared in class one day. Leo and Abraham consulted with the head of the manual-training department, and a bundle of rods made its way into the Latin room. Then the ax-handle offered a difficulty, but Hyman overcame this with a broomstick, and nothing remained but the material for binding the rods together. The Romans used red leather; so we must use red leather. Someone suggested that the thongs used to lace up footballs might do if dyed red. Ethel offered to dye them. She took them home and dyed them a beautiful red, but unfortunately they stiffened and broke when we attempted to tie them. Red leather belts were then considered, but most of them are of patent leather and stiff and therefore not practicable. At last, we decided to consult with the owner of one of the leading leather stores of the city. He became very much interested in our problem and sent to Pittsburgh to his factory to get the bits of red leather that we needed.

Then we were ready! Polished rods, ax, ax-handle, and red leather, all complete, ready for assembling! We settled down to that problem, and with tools borrowed from the manual-training depart-

ment, gilt paint from the art department, wire and wire-cutter from a sympathetic custodian, a bottle of glue from an interested principal, and the breathless interest of a score of pupils, we made the fasces and proudly hung it on the wall.

Initiation into the Olympian Club was approaching, and the committee was pondering over an appropriate symbol for the new members to wear on that important occasion.

"It would be simply great," said Ella, "to make miniature fasces for them, but, of course, that's out of the question, for we have no rods small enough, and we simply couldn't make the axes."

"Where's your imagination?" interrupted Anna at this point. "There's the garden out there full of shrubs simply begging to be pruned, and gilded cardboard is surely strong enough for a baby ax."

"Then," came quietly from Bertha, "we can use red string instead of leather, and we can fasten a safety pin on the fasces and pin it to the lapel or dress of the initiate."

So the miniature fasces were made. They were two and one-half inches long and were tied in three places with red twine, which also held the gold-colored safety pins in place. The gilded ax gleamed brightly from the center of the twigs which the school garden had furnished.

The fasces were the attraction of initiation day. The Latin classes throughout the building were very much interested in them and came into the Latin room to ask about them and learn more about the Olympian Club. One little boy from the junior high school came in to ask, "How long does a fellow have to take Latin before he can wear one of those things?"

Then the really great task was undertaken, for one day our principal suggested that the club make enough fasces to send as souvenirs to the members of the Ohio Latin Conference which was to meet at Oberlin in three weeks.

Make two hundred of them! Two hundred bundles of twigs, with two hundred axes, tied to two hundred safety pins! The motion was put before the club at the next meeting. The pupils were full of doubts and fears.

"It can't be done."

"We should never get through."

"We'd have to work terribly hard."

Such was the immediate reaction to the suggestion. The discussion was in full flood.

"But," remarked one of the boys, "wouldn't it be rather nice to have all of the teachers there take them back to their classes and explain them to their pupils?"

"Then they'll know that Latin isn't dead at Central anyway."

"Let's do it! I'm willing to do my part!" said one of the girls, and the vote was taken in a tremendous surge of enthusiasm.

Then for two weeks all of the spare time of the club members was devoted to making fasces. The big table in the rear of the room was turned over to them. With nimble fingers and flying tongues, with gleaming scissors, shining pins, snapping twigs, and heaps of bright red twine, the fasces were made. Everyone helped, some more than others because they were more skilful, but someone was busy at the table every hour of the day. Most of the work fell upon the girls, as the boys were a little awkward at such delicate tasks, but they helped with the twigs and encouraged the girls with advice and admiration and were of great assistance in many ways. Many mistakes were made at first, but as the work went on the pupils became more expert.

When, at the end of the first week, some sixty fasces were finished, the workers were elated. Meanwhile, red and light blue ribbon (the school colors) had been bought and cut into five-inch lengths. Upon these had been printed "Compliments of the Olympian Club, Central High School, Cleveland." The work progressed, and the hundred mark was passed, but the high spirits of the workers took a sudden tumble, for, when the work of pinning the completed fasces upon the ribbons was started, it was found that the twigs had shrunk in some cases and the bundles had become loosened. This meant the re-tying of many of them, but this was accomplished in time, and at the end of two weeks two hundred fasces had been made and fastened to their ribbons and packed safely away in a five-pound candy box which had been donated as a suitable receptacle for such a precious gift. Then, while the whole club looked on, the box was tied up with light blue and red ribbons and wrapped ready for its journey to Oberlin.

Educational Writings

REVIEWS AND BOOK NOTES

A valuable aid to teachers of the social studies.—One who has examined the state manuals for high-school teachers that have been appearing from time to time during the past decade is impressed with the remarkable improvement in this type of material for teachers. In no field has improvement been more marked than in the social studies. Ten years ago the state of New York was almost alone in its endeavor to help history teachers through a manual devoted entirely to their subject. The seeming new lease of life that history and the other social studies have taken on since 1920 has resulted in excellent manuals devoted to the social studies in the high school from the state departments of education of Texas, Connecticut, New Jersey, Maryland, Oklahoma, and possibly others. A splendid example of these elaborate manuals is the one¹ recently published by the State Department of Education of Maryland. To the writer's knowledge, no other state has equaled Maryland's effort in the mere size of the manual.

Too frequently makers of manuals for teachers of the social studies have been satisfied with mediocre outlines of the various subjects. They have often done only what many good teachers could have done better. Not so, however, with those who prepared the Maryland manual, for, besides outlines of a useful kind, they have included in their manual helpful material on such subjects as the history laboratory, measuring the results of history-teaching, directing pupils how to study history, the preparation of teachers of the social studies, teaching pupils to think by means of the social studies, social aims of the high school, some guiding principles and assumptions, and the present status of the social studies. On all these topics the best that has been said and done to date has been skilfully utilized. In fact, the excellent use made of the new ideas that have come into the field of the social studies during the past decade is the outstanding characteristic of this unique manual.

If there is any other state department of education in the country that has provided the teachers of the social studies under its jurisdiction with aids as valuable as those found in the present manual, the reviewer is not aware of its work. To bring to the teachers of the state the best in a particular field is certainly a worth-while activity of a state department of education. The teachers of the social studies in Maryland are to be congratulated on having one of the

¹ *The Teaching of the Social Studies*. Maryland School Bulletin, Vol. VI, No. 4. Baltimore: State Department of Education, 1924. Pp. 292.

best manuals in the country. If they succeed in putting into practice but a fractional part of the many excellent suggestions that the manual contains, in a few years their state will be known for its excellent teachers of the social studies. Let us hope that other states will take note of what Maryland has done and in the near future furnish their teachers with aids of a similar character.

R. M. TRYON

The superintendent as a personnel manager.—In a recent book¹ the superintendent of city schools is presented in the rôle of a personnel manager. The distinction between the material and personnel phases of school administration is set forth in the first two chapters. The problems of personnel are represented as the more difficult and important. The author believes that eventually there will be established within public-school systems personnel departments similar to those already established in business and industry for the purpose of conserving human capacity, interest, and energy.

Several succeeding chapters might be grouped under the heading "Recruiting and Selecting Teachers." Under this division the desirable amount and kind of preparatory teacher-training are discussed. The Burgess index for measuring the training of teachers within a state is applied to city school systems. The various devices and methods used in selecting teachers are described, such as standardized application and reference blanks, intelligence tests, competitive examinations, personal interviews, and scouting. The author believes that an occupational description for each type of work for which candidates are selected should precede the filling of the positions. The contributions of other investigators are discussed, and their findings are utilized in the solution of the problem of selecting teachers. The arguments for and against the selection of home-talent teachers and married teachers are summarized in chapters ix and x. The investigations of Bagley, Cubberley, and Edmonson and the experience of the New York City and the Detroit school systems are outlined. Superintendents desirous of improving their selective technique will find the section very helpful.

The second division of personnel problems might be classified as "Improving Teaching Service and the Conditions of Teaching Service." It includes such chapter titles as "Personnel Problems in Training Teachers in Service," "Introducing the Teacher to Her Work," "Measuring Teacher Merit and Teacher Load," "Factors Determining the Salaries of Teachers," "Consideration of the Problems of Tenure," and "Teacher Health and Recreation." In this division the author has done well to emphasize the too meagerly investigated problem of how best to introduce the teacher to her work. Much depends on a right start and right placement. Business and industry have pointed the way, and superintendents will find the "sponsor" and "follow-up" systems worthy of their attention. Chapter v contains a good outline of the best plans in use in various cities for training teachers in service. Chapters xi and xii deal with the various

¹ Ervin Eugene Lewis, *Personnel Problems of the Teaching Staff*. New York: Century Co., 1925. Pp. xviii+460. \$2.25.

objective methods now employed for measuring teacher merit and teaching load; the author discusses in two chapters the investigations and objective-measurement plans of the leading contributors to this field. The reader will not find the author offering new and unusual solutions for the problems connected with salary and tenure but will discover a good outline and summary treatment of the best work that has been done by investigators, national committees, and research workers.

The third group of problems might properly be labeled "Building an Esprit de Corps." In three chapters the problem of teacher participation in administration is discussed, and the contributions, studies, and investigations in the field are summarized.

The book has the distinction of being an initial contribution in the field the author has undertaken to develop, and it is commendable that he confined his efforts to an outline of the existing investigations, data, and techniques instead of attempting to give elaborate evaluations and generalizations. The volume should prove a most valuable reference and guide for superintendents, teachers of educational administration, members of the teaching staff, and all who wish to improve teaching service and the conditions of teaching service.

I. M. ALLEN

Miscellaneous studies in education.—The first volume¹ of contributions to education made by members of the New York Society for the Experimental Study of Education contains a very interesting collection of reports and papers. It is difficult to characterize the publication because of the number and somewhat cosmopolitan character of the problems studied. It has an introduction and thirty-one chapters, each prepared by a different author and obviously relating to some research or careful thinking carried on since the birth of the organization in 1918. Twenty-one of the thirty-one studies are quantitative or experimental; five relate to the needs or possibilities of a plan for qualitative or experimental studies of given types; and three of the remaining five relate to civic education and the social studies. Six chapters are given over to descriptions or critical studies of tests. Among these is one notable for its merit of including in a delightfully concise and clear manner the most desirable information about the test described, namely, a classification test by Arthur S. Otis. Nine of the studies have to do chiefly with secondary education and three with elementary education. The range of topics is wide in spite of the general quantitative trend.

Some of the studies are reports of research projects of considerable dimensions; a few seem to be written in the spirit of an assignment. Because of their cosmopolitan authorship, generalization as to style is next to impossible. Without exception, they are all readable, although some knowledge of statistical

¹ *Contributions to Education*, Vol. I. Edited by J. Carleton Bell. Yonkers-on-Hudson, New York: World Book Co., 1924. Pp. xx+364. \$2.00.

method and terminology and theory of educational measurement is necessary for the appreciation of much of the material.

The authors, all of whom are members of the New York organization, are engaged or have been engaged in educational work in or adjacent to New York City. Among those most widely known are Thorndike, Snedden, Hollingworth, Kilpatrick, Hasic, Gates, and Johnson, of Teachers College, Columbia University; Payne, of New York University; Dawson, of Hunter College; and Klap- per, of the College of the City of New York. The difficult task of organizing such a collection of studies has been ably accomplished by the editor, J. Carleton Bell, secretary-treasurer of the organization.

Some of the most interesting and practical of the contributions are furnished by teachers, principals, and officials of lower schools and are based on actual school experiences. Of such a nature are Principal Peyser's description of his experimental school, Public School 181, of Brooklyn; "An Experiment in the Supervision of Handwriting" by District Superintendent Taylor of New York; and "Problems in the Modern Language Fields and Attempted Solutions" by Lawrence A. Wilkins, director of modern languages in the high schools of New York City.

Because of the varied nature of the studies, the number of interested readers for the entire volume will be somewhat limited. It is doubtful whether, for any purpose other than as concrete evidence of the spirit and achievement of the organization and as a means of promoting its morale, the studies should have been published in one volume. A much wider audience would have been obtained for the individual studies had they been published as articles. However, every student of quantitative measurement and experimental education will find a number of the studies of interest and value.

HARL R. DOUGLASS

UNIVERSITY OF OREGON

The co-ordination of secular and religious education.—Our country was founded on the principle of the separation of church and state. Without doubt, this is a permanently established principle. As a result, twenty-seven million young people less than twenty-five years of age are under no direct influence of religious instruction in the United States today. Only about one-third of our population is organically connected with any religious denomination. This means that a majority of our citizens assume the obligations of citizenship without its spiritual or even highly moral interpretations. It is time that some way be devised which will bring our public-school children into vital contact with the fundamental elements of religious education. A recent book¹ reveals some possibilities of correlating the work of the public school with that of the church school.

¹ C. A. Hauser, *Latent Religious Resources in Public School Education*. Philadelphia: Publication and Sunday School Board of the Reformed Church (Fifteenth and Race Streets), 1924. Pp. viii+320. \$2.50.

The purpose of this book is to bring into closer personal relationship two groups of educators who should become more intimately acquainted with each other's important field of work. These two groups are the public-school teachers and the church-school teachers. The average church-school leader today knows comparatively little of educational procedure—but he must learn it—and the public-school teacher has had little reason to give serious attention to the church school because of its low educational ideals and the hopelessness, until recently, of materially improving conditions. But this is rapidly changing now [p. v].

The author shows that the public schools emphasize citizenship in a democracy; and the church schools, citizenship in a democracy that is Christian. One must supplement the work of the other. The teaching of religion in the public schools is impracticable; the system of parochial schools is a product of the European state-church system and largely un-American. Religious education in co-operation with the public schools, therefore, seems to be the only way to solve the problem. The author then proceeds to show how this can be done in a twofold way. In Part I, he discusses "Latent Religious Resources in Public School Education" as they relate to educational aims and objectives. In Part II, he discusses the theme as it finds its application in the Philadelphia public-school course of study. However, he takes this course of study only as an example. Similar application can be made to any curriculum.

After discussing the present waste in religious education, the author develops psychological bases for religious education. Here he criticizes the behavioristic psychology because it leaves no place for the influence of the Deity in the mind. Next he discusses education as a control of conduct with the implication, "Knowledge is power, when used." The remaining part of the book is organized around Professor A. Duncan Yocum's five forms of control, namely, impression, vocabulary, variation, habit and system, and transfer. The aims of both general and religious education are connected with these forms of control as are the efficiency tests which are set up pertaining to the teaching of religious education.

In Part II, the latent religious resources are concretely shown as they exist in the literature, history, natural-science, social-science, art, and music courses of the Philadelphia public schools; it is also shown how these resources can be utilized in the church schools. However, the church-school standards are set up in such a way that they can be related to or co-ordinated with any public-school curriculum. This is the author's real contribution to the problem of religious education.

The fact that the study was accepted by the School of Education of the University of Pennsylvania as a Doctor's dissertation indicates that it is reliable, scientific, and technical in its nature. It is too technical to be intelligently read by the average church-school teacher of today; yet it is a step in the right direction to show that the teaching of religious education should be placed on as high a professional basis as public-school teaching. The book presents possibilities of co-ordinating secular and religious education that should be understood by public-school teachers as well as by teachers of the church schools.

JOHN A. NIETZ

A revision of traditional algebra.—*First Year Algebra*¹ by Milne and Downey states in the Preface that it is in accord with modern courses of study, the Report of the National Committee on Mathematical Requirements, and the latest announcements of the College Entrance Examination Board and that it is sufficient in scope to be used by teachers who wish to give ample opportunity to good students desiring more than the minimum requirements of the course.

The first chapter attempts to lead the pupil from arithmetic into algebra by introducing him to the great advantages which the symbolic language of algebra offers in generalizing many of the tedious details of arithmetic. The emphasis placed on the equation in this first chapter and its continuation throughout the book bring the central feature of elementary algebra into its rightful prominence. This enables the authors to introduce the pupil in a proper manner to dependence and variation in connection with formulas and graphs and to bring these topics, along with the function idea, into their natural relations to the equation.

The gradual approach to each important idea in the book, aided by numerous geometric illustrations, is a feature worthy of favorable comment because it prevents the pupil from plunging into exercises illustrating a new topic before he has had an opportunity to absorb the new idea. The introductory work in negative numbers, graphs, and the solution of problems gives striking instances of this gradual approach.

The checking of results is sufficiently emphasized to impress the pupil with the fact that for accurate work he must depend on some kind of a check, although it may not seem advisable to give specific directions to check each exercise.

The chapter on "Numerical Trigonometry" might have been more closely connected with the chapters on "Ratio" and "Formulas," thus preventing the impression that it is an afterthought somewhat foreign to algebra. There is material in this chapter, however, which any good teacher can easily connect with the other topics, in spite of the fact that the chapter is placed at the end of the book.

The frequent reviews and timed tests make the book very usable for the drill work which is so necessary in first-year algebra.

HARRY DAVIS GAYLORD

BROWNE AND NICHOLS SCHOOL
CAMBRIDGE, MASSACHUSETTS

A new interpretation of left-handedness.—The phenomenon of left-handedness is an age-old enigma which has aroused almost endless discussion and stimulated much scientific inquiry. The most recent contribution² on the subject presents a new interpretation of preferred-handedness.

¹ William J. Milne and Walter F. Downey, *First Year Algebra*. Chicago: American Book Co., 1924. Pp. 320+xxviii.

² Beaufort Sims Parson, *Left-handedness*. New York: Macmillan Co., 1924. Pp. viii+186.

The volume contains ten brief chapters. The numerous theories regarding the causes of left-handedness are concisely reviewed. The author then advances his theory of the causal relation between monocular vision and hand preference. He maintains that monocular sighting is born of the necessity to remedy an unavoidable defect in the binocular mechanism. While natural vision is bilaterally symmetrical, he points out that in acts of exact orientation the line of median sight is unconsciously disregarded and the person becomes virtually one-eyed. Thus the dominant use of one eye occasioned by the need for monocular vision results in the favoring of the hand on the same side of the body. Unilateral vision, therefore, is regarded as the cause of preferred-handedness.

The author has constructed a simple piece of apparatus, called the Manuscope, which identifies the sighting eye. When this fact is determined, the natural physiological relation between eye and hand is known. The information is especially significant "in the case of stutters, dull and backward pupils, truants, the awkward, the chronically morose, and other abnormal and delinquent types. . . . Not the least important use to which it can be put is to enable us to find out which cerebral hemisphere is the dominant one" (p. 87). One chapter sets forth the results of manuscriptic tests of public-school children and demonstrates the value of the information thus obtained.

A bibliography of the extensive literature on left-handedness is a valuable addition to the volume.

W. C. REAVIS

New material for reading in Latin.—Since the completion of the British classical survey British teachers of Latin have been emphasizing as one of their objectives historical and philosophical perspective. It is their intention that large periods of history shall be covered and that the reading shall be done partly in Latin and partly in English. As a result, producers of Latin texts have been attempting to develop materials which will give secondary-school pupils a wider acquaintance with Latin history.

A recent text¹ is designed to meet the need for materials of this sort. It contains Books XXI and XXII of Livy's narrative, the story of Hannibal's career from the time that he went to Spain until he defeated the Romans at Cannae. There is an excellent introduction containing a simple, adequate account of the Phoenicians, the Carthaginians, and the early Romans; a rather full sketch of the First Punic War and the Mercenary War at Carthage; and a short sketch of the Second and Third Punic Wars. The pages on the significance of the Punic Wars and the chapter on "Livy and Polybius" are especially in harmony with the objective mentioned.

The text itself consists partly of good English translation, partly of Latin,

¹ *Hannibal's Invasion of Italy* (Livy, Books XXI and XXII—partly in the original and partly in translation). Edited by John Jackson. New York: Oxford University Press, American Branch, 1924. Pp. 180. \$0.90.

and partly of summary of the less significant passages. Of eighty-two Teubner pages, twenty-nine are in Latin. The choice of passages left in Latin seems to have been made on the basis of interest and utility rather than in conformity with some logical scheme. The volume impresses one as an interesting, sprightly account of something worth recounting. The simple notes at the end of the text help in understanding both the English and the Latin. There are relatively few syntactical notes. A glossary of proper names, a vocabulary, and a map complete the book. The inclusion of the vocabulary and the simple presentations suggest that the author intended the volume for use by secondary-school pupils. The book seems to be a well-designed, well-arranged, interesting, usable text for that purpose.

MIMA MAXEY

The use of graphic methods in presenting educational data.—Graphic and pictorial representation of facts has come to be used not only in scientific treatises but even in popular magazine articles and newspaper discussions. School officials and educational investigators have made extensive use of the various types of charts and visual aids in presenting data. It must be recognized that scientific and correct procedure is fundamental to any investigation; yet the ability to supplement verbal description by the condensed and effective methods of graphic display is important. Especially do school surveys, reports of school officials, and educational programs take on greater significance in the eyes of the reading public through correct charting of scientifically determined facts.

The purpose of a recent volume¹ is expressed as follows:

To show how easily charts can be made, even by inexperienced persons and by those who possess no better than ordinary ability in drawing; how effectively charts can be brought into use in the representation of educational and sociological facts; how to choose the kind of chart which is most effective for a given purpose; how to avoid the errors which uninstructed persons are likely to make in drawing charts; and how to judge the worth of a finished chart [p. 8].

Chapter i discusses very briefly the purpose and value of graphic methods. Chapter ii lists the various materials and instruments which are used in the preparation of charts. The author divides graphic representation into fifteen main types which are described and illustrated in chapters iii–xvii, inclusive. The methods of charting treated in the discussion are: squares and simple areas, bar representations, circle representations, curves, frequency surfaces, individual frequency distributions, block diagrams, organization charts, maps, genealogical charts, architectural diagrams, picture graphs, verbal-display charts, charts made with the aid of type, and special chart devices. Chapter xviii gives sets of rules for judging graphic procedure and for checking up chart work. A five-division grading-scale for charts is suggested.

¹ J. Harold Williams, *Graphic Methods in Education*. Boston: Houghton Mifflin Co., 1924. Pp. xviii+320. \$2.00.

The first two chapters are followed by selected lists of references. The fifteen chapters which describe the various types of graphic representation include problems for charting. The book contains 148 figures. The author does not neglect to point out at appropriate intervals the misinterpretations which may accompany the use of certain graphic devices. Possibly the treatment makes charting appear so easy as to result in misapplication and overworking, on the part of the novice and the publicity-seeker, of the excellent methods described. As a whole, the volume should prove definitely useful to all who are concerned in any way with the preparation of charts.

CARTER V. GOOD

An elementary Spanish grammar for high-school or college classes.—The authors of a Spanish grammar¹ claim that they have produced a book which can be finished in about one year in college or two years or less in the secondary school. Since the college and the secondary school are, after all, very different, it would be better, from the teacher's standpoint, to have textbooks written definitely for one institution or the other. This plan, however, is seldom adopted in the making of elementary foreign-language grammars.

It is frankly stated in the Preface that the book is not intended as a reference grammar and that the plan is to include only the more fundamental principles of usage. It is considered better that students gain real mastery of essential principles than that they become lost in details which are, to them, irrelevant or confusing. The body of usage is adequate for the average first-year college course or for the first two years of the high-school course. The vocabulary is held within a compass of approximately 1,100 words, which is considered the maximum that should be expected.

From the beginning there are suggestions for original sentence composition, illustrative of specific points. Free composition, in the opinion of the authors, should be permitted to but few students, such as can be trusted to use the dictionary with discretion. The material presented for consideration in the Spanish exercises and in the exercises for translation into English is, for the most part, based on the daily life of American students. In the last five lessons there is some material on Mexican life. The use of dictation is suggested, and there are many simple exercises for conversation. Because of the ease with which the student follows the thread of thought so familiar to him, the conversation exercises will be readily accomplished. Translation from English to Spanish, in which the material of the Spanish portion is re-worked, is employed from the beginning, in line with common practice. It is the firm belief of the reviewer, however, that such early introduction of translation, even though it be from English to Spanish, has a pronounced tendency to develop the translation habit.

A number of illustrations are employed for direct-method instruction, such

¹ Arthur Hamilton and John Van Horne, *Elementary Spanish Grammar*. New York: Century Co., 1924. Pp. x+326. \$1.50.

as pictures representing the human body, the classroom, clothing, the living-room of a home, the dining-room, and a student's room. Lines are drawn from the margin to various points in the illustration, and the names of the objects or parts are given in Spanish. This device will undoubtedly prove to be effective. Such illustrations might well have been more numerous.

In many respects the book displays sound pedagogical judgment and ample familiarity with the difficulties encountered by the teacher of elementary students of a foreign language. It is well edited; the material is judiciously selected and clearly presented.

JOHN C. RANSMEIER

Stimulating reading in elementary French.—The instructor of modern languages sometimes finds himself in need of appropriate easy reading-material. Unfortunately, much that is finest in modern continental literature has a gloomy touch. Healthy youth has a just claim to good fun and a happy outlook. The instructor who is sympathetic with this point of view will be interested in a text¹ prepared for beginners in French.

Contes gais is a collection of ten amusing and delightful stories, the very title of which is a stimulus. These stories offer variety, yet all alike offer a diction and a vocabulary of the most practical and valuable kind. They are full of fun but have distinct literary value. The exercises which accompany the stories help the student to grasp and reinforce through practice many of the more important expressions. The footnotes and vocabulary furnish adequate aid.

In form and make-up the text embodies some very interesting features: the book is small enough to fit into the pocket; the binding and the artistic black-and-white illustrations are as happily reassuring as the title; the exercise in each case is not to be found toward the end of the book but follows the story immediately; likewise the reference notes are not hidden but are made to attract the eye at once at the foot of the page; the pages are indicated by the proper numerals spelled out in French, with the figures in parentheses, thus offering the novice a means of learning the French numbers with very little trouble. Altogether, this new text seems to merit considerable interest, particularly since it is simple and clear enough for use in the high school and yet substantial enough for rapid reading in the beginners' class in college French.

DURBIN ROWLAND

State legislation and judicial opinions affecting private schools.—Of late, bitter controversy has developed between the exponents of private and parochial education and public-school people. In certain states there have been definite attempts to abolish all private schools. The public-school advocates maintain that private and parochial schools are inadequately supervised and do an in-

¹ *Contes gais*. Compiled and edited by E. B. de Sauzé. Philadelphia: John C. Winston Co., 1924. Pp. xii+190.

rior grade of work. The defendants of the private schools argue that their constitutional liberties are being infringed upon by present tendencies and certain attempted legislation. Organizations are active on both sides of the question, and one of the most vigorous of such agencies has issued a publication¹ which summarizes all private-school legislation and judicial decisions.

The laws relative to private schools are grouped by states. The state laws and state constitutional provisions which affect private schools are summarized under twelve headings. Forty states have constitutional provisions against appropriations for sectarian purposes and against the use of public-school funds for other than public-school purposes. Thirty-two states have constitutional provisions for the exemption of school property from taxation. All states have compulsory-attendance provisions. A complete collection of cases on Bible reading in the public schools is given. The practice with regard to Bible reading varies greatly. In some states it is obligatory by statute; in some states it is specifically permitted by school law; and in other states the law is silent on the question. In certain states Bible reading may or may not be practiced, according to court decisions or general interpretations of the law. Other judicial decisions include cases which deal with foreign languages, the right to teach religion in the schools, the Oregon compulsory-education act, public funds for sectarian institutions, parental right to select studies, compulsory education, absence from public school on holy days, exemption of private-school property from taxation, and the wearing of religious garb in the public schools. The decisions of state superintendents listed are concerned with nuns as public-school teachers, religious exercises in public schools, compulsory attendance and private schools, and contracts with private schools. The volume contains a bibliography and an index.

While there seems no reasonable doubt that the study was undertaken for purposes of propaganda, it is at the same time a creditable piece of work. Such a publication indicates that the ancient three-cornered dilemma of the church, the state, and the school is destined to remain unsolved for some time to come. The summary points to the possibilities in the comparatively new field of educational legislation. Hardly a beginning has been made in the investigation of the legal basis of school administration, and it should prove a fruitful field for further work and study. Valuable and pertinent material should be selected and summarized from the thousands of law volumes containing school cases and made available for ready reference and study by school people.

CARTER V. GOOD

Occupational information for high-school pupils.—One important purpose of our secondary schools is to help the pupil choose a proper vocation in order to

¹ *Private Schools and State Laws*. Compiled by Charles N. Lischka. Education Bulletin, No. 4. Washington: National Catholic Welfare Conference, 1924. Pp. 220. \$1.00.

earn a good living. There are too many misfits in present society. Too many of our youth, in their anxiety to earn money, take blind-alley jobs. The big problem is: How can this condition be changed? Many remedies have been suggested. All agree in at least one respect, namely, that, before making a choice, an individual should get a general view of various vocations. Such a view is effectively presented in a recent book.^{*}

The authors begin by justifying the value of a general education before seriously preparing for life's calling. How to choose a vocation is then discussed.

In considering each occupation it is well to keep in mind these questions: (1) Do you like that kind of work? (2) Are you physically and mentally fit? (3) Have you the time and money to prepare for it? (4) Is there enough demand for this work? (5) Can you make a good living at it? (6) Does it give you an opportunity to be of service to your fellow-man? [P. 17.]

Chapter iii discusses the preparation for a vocation. The various high-school subjects are considered, and it is shown how each contributes to the preparation for many vocations. The several methods by which vocations are learned are then presented. The fundamental habits—accuracy, energy, judgment, initiative, co-operation, and reliability—are discussed as essential for success in any line of work.

The remaining chapters, with the exception of the last, are devoted to valuable discussions of the leading professions and vocations. The work of each is explained; the qualities and preparation needed are mentioned; and the advantages as well as the limitations of each are presented. The many photographic illustrations add to the value of the book. Each chapter ends with several unique features. For example, the authors show how skilled workers of any trade or profession can be of real service to the community; things to be done by the pupils and the problems to be studied outside of class are listed; and a list of books to be read is presented. Very few of the books listed are of the formal textbook type. Most of them should challenge the interest of the adolescent youth. Unfortunately, the authors failed to include the names of the publishers of these books. This is a serious omission, for such a list should serve as a guide in purchasing supplementary books.

The last chapter presents sound advice for those who feel that they must begin work early in life. It mentions many ways of earning money while attending school and should help the pupil to avoid entering a blind-alley job.

The book may be classed as a text in vocational civics. As such, it should find ready use in secondary-school courses. Its contribution consists in the interesting manner in which it presents a general view of the leading trades and professions of today. It ought to enable pupils more wisely to observe and study their possible future careers.

JOHN A. NIETZ

^{*} Samuel H. Ziegler and Helen Jaquette, *Choosing an Occupation*. Philadelphia: John C. Winston Co., 1924. Pp. xvi+344.

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- ALMACK, JOHN C., and LANG, ALBERT R. *Problems of the Teaching Profession*. Boston: Houghton Mifflin Co., 1925. Pp. xviii+340. \$1.90.
- ANDRUS, RUTH. *A Tentative Inventory of the Habits of Children from Two to Four Years of Age*. Teachers College Contributions to Education, No. 160. New York: Teachers College, Columbia University, 1924. Pp. 50.
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- English Evidence*. Collected by C. H. Ward. Chicago: Scott, Foresman & Co., 1925. Pp. 284. \$1.00.
- GESELL, ARNOLD. *The Mental Growth of the Preschool Child*. New York: Macmillan Co., 1925. Pp. x+448.
- MOORE, ANNIE E. *The Primary School: The Improvement of Its Organisation and Instruction*. Boston: Houghton Mifflin Co., 1925. Pp. xii+340. \$2.00.
- PAYNE, ARTHUR F. *Organization of Vocational Guidance*. New York: McGraw-Hill Book Co., Inc., 1925. Pp. xvi+438. \$3.50.
- REEVES, CHARLES EVERARD. *An Analysis of Janitor Service in Elementary Schools*. Teachers College Contributions to Education, No. 167. New York: Teachers College, Columbia University, 1925. Pp. x+194.
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- RUSSELL, WILLIAM F., HOLY, THOMAS C., STONE, RALEIGH W., and OTHERS. *The Financing of Education in Iowa*. Report of the Educational Finance Inquiry Commission, Vol. VIII. New York: Macmillan Co., 1925. Pp. xxii+280.
- Studies in Secondary Education. II*. University High School, University of Chicago. Supplementary Educational Monographs, No. 26. Chicago: Department of Education, University of Chicago, 1925. Pp. vi+202. \$1.75.

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- BOAS, RALPH PHILIP, and SMITH, EDWIN. *An Introduction to the Study of Literature*. New York: Harcourt, Brace & Co., 1925. Pp. xii+454.
- Caesar's Helvetian War*. Edited for the use of beginners by W. Welch and C. G. Duffield. Revised and enlarged by Sidney G. Ashmore. New York: Macmillan Co., 1925 [revised]. Pp. xiv+112.
- JEFFREY, HARRY R. *Wood-Finishing*. Peoria, Illinois: Manual Arts Press, 1924. Pp. 178. \$1.50.
- MARTIN, ASA EARL, and SHENK, HIRAM HERR. *Pennsylvania History Told by Contemporaries*. New York: Macmillan Co., 1925. Pp. xxii+622.

- MAURER, ROBERT A., and JONES, GEORGE J. *The Constitution of the United States with an Introduction to the Study of the Government of Our Country.* Boston: D. C. Heath & Co., 1925. Pp. iv+128.
- PRICE, OLIVE M. *Short Plays from American History and Literature.* New York: Samuel French, 1925. Pp. xiv+246. \$1.75.
- SMITH, ROBERT H. *Agricultural Mechanics.* Philadelphia: J. B. Lippincott Co., 1925. Pp. viii+358.
- VAUGHAN, D. M. *Great Peoples of the Ancient World.* New York: Longmans, Green & Co., 1925. Pp. x+178. \$1.20.
- WEEMS, ROGER BURCH. *Un Verano en España.* Boston: D. C. Heath & Co., 1925. Pp. viii+250.
- WILLOUGHBY, GEORGE A. *Automotive Electricity Simplified.* Peoria, Illinois: Manual Arts Press, 1925. Pp. 128. \$1.40.

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- Lantern Slides and Lecture Material on Eyesight Conservation.* Bulletin No. 5. New York: Eye Sight Conservation Council of America (Times Building), 1924. Pp. 94. \$0.40.
- ODELL, CHARLES W. *Educational Tests for Use in Elementary Schools, Revised.* Educational Research Circular No. 33. University of Illinois Bulletin, Vol. XXII, No. 16. Urbana, Illinois: University of Illinois, 1924. Pp. 22.
- Proceedings of the High School Conference of November 20, 21, and 22, 1924.* University of Illinois Bulletin, Vol. XXII, No. 17. Urbana, Illinois: University of Illinois, 1925. Pp. 274.
- Recent issues of the Bureau of Education:
- Bulletin No. 18, 1924—*Introduction of Algebra into American Schools in the Eighteenth Century.*
- Bulletin No. 29, 1924—*Legislation on the Junior High School.*
- Bulletin No. 32, 1924—*A Study of 260 School Consolidations.*
- Bulletin No. 36, 1924—*A Manual of Educational Legislation for the Guidance of Committees on Education in the State Legislatures.*
- Health Education Bulletin No. 17—*Helps for the Rural School Nurse.*

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- Bible Readings for Schools and Colleges.* Edited by John M. Thomas and A. Howry Espenshade. New York: Macmillan Co., 1925. Pp. xx+288.
- Index to Dramatic Readings.* Compiled by Agnes K. Silk and Clara E. Fanning. Boston: F. W. Faxon Co., 1925. Pp. 304. \$5.00.
- SOLTES, MORDECAI. *The Yiddish Press: An Americanizing Agency.* New York: Teachers College, Columbia University, 1924. Pp. 242.

